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December, 1952

## Present Trends in the Treatment of Osteomyelitis

## Symposium on Shock

## Common Scrotal Enlargements

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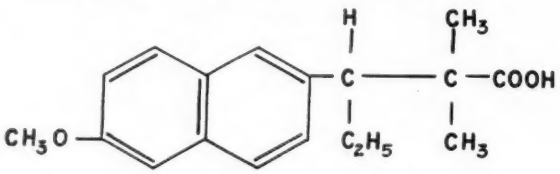


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# THE HYPOTHALMUS AND THYROID FUNCTION

Monte A. Greer, M.D.
Bethesda, Maryland

It has long been known that the thyroid gland is dependent upon the pars anterior of the pituitary for maintenance of its normal metabolism. Pituitary extirpation results in atrophy, both gross and microscopic, of the thyroid as well as other target endocrine organs. Thyroidal metabolism of iodine is also reduced to a minimum, as can now be precisely determined with radioactive tracers and refined measurements of circulating organic iodine. Conversely, administration of pituitary extracts will cause hypertrophy of the thyroid and a marked increase in its metabolism, even to the point of inducing experimental hyperthyroidism.

Since the anatomic and functional state of the gland seem to go hand in hand, it has been assumed that a single pituitary factor, called "thyrotrophin" or "thyroid stimulating hormone," is responsible. This concept has been strengthened by the absence, to date, of any indication that purification of the thyrotrophic factor results in a different *in vivo* thyroidal effect than that of crude pituitary extract.

So far as is known, there is no extra-pituitary hormonal or nervous control of thyroid function, although certain substances such as iodine and antithyroid compounds seem to have a direct action on the gland itself, presumably by reacting with specific thyroidal enzyme systems. Transplantation or denervation of the thyroid does not, however, significantly interfere with its activity.

Nevertheless, certain observations, such as the occurrence of hyperthyroidism following severe emotional shock, have suggested that the central nervous system may play some role in the regulation of thyroid function. This regulation would presumably be through control of the thyrotrophic secretion of the pars anterior. Several investigations have been undertaken to determine what control, if any, the central nervous system may exert, but the results have been inconclusive due to the crude and non-specific criteria then available.

The hypothalamus is generally considered to be the area most likely to be concerned with any regulation of pituitary activity. There are several reasons for this. It is known that this area is of prime importance in the regulation of such basic homeostatic phenomena as sleep, diuresis, and isothermia. The hypothalamus is intimately concerned in the morphogenesis of the pituitary and, indeed, the posterior pituitary lobe is merely a hypothalamic extension. An hypophysial portal system exists which brings capil-

lary blood from the median eminence to the pars anterior, suggesting that hypothalamic "neurohumors" may be produced which influence the anterior pituitary. The inability to demonstrate a significant nervous supply to the anterior lobe indicates that direct nervous transmission is an unlikely controlling mechanism. Clinically, hypothalamic lesions or tumors have resulted in both sexual precocity and sexual infantilism without anatomic evidence of pituitary damage.

Recent experimental evidence indicates that the transplanted pituitary does not function normally unless it is in contact with the median eminence and re-establishment of the hypophysial portal system has been effected (1). Electrolytic hypothalamic lesions can produce constant estrus or adiposogenital dystrophy in rats and guinea pigs, (2) and transection of the pituitary stalk in both rabbits and rats can cause profound changes in the target endocrine organs without any gross damage to the pituitary itself (3).

Because of the rapid technical advances made in the past decade, it was inevitable that a reinvestigation of the problem of nervous control of thyrotrophic function would be undertaken. Thiouracil interferes with thyroxin synthesis and the consequent low level of circulating thyroxin results in a marked increase in the secretion of thyrotrophin by the pituitary. In the intact rat this augmented secretion of thyrotrophin stimulates thyroid hypertrophy and hyperplasia and increases 10-fold the ability of the gland to concentrate inorganic iodide. In a study of the effect of hypothalamic lesions produced electrolytically in the rat, it was found that the goitrogenic response to thiouracil feeding could be entirely prevented (4). Surprisingly, iodide concentration was increased as much in the hypothalamic animals as in similarly treated intact rats in spite of the absence of anatomic evidence of hyperactivity. This may be explained by assuming that the iodide concentration was sensitive to lower concentrations of thyrotrophin than was the growth response of the thyroid cells or, alternatively, that two thyrotrophic "factors" exist. One, the "growth factor," may not be adequately secreted in the absence of a certain portion of the hypothalamus, while the "metabolic factor" may be independent of this particular hypothalamic area. Favoring the latter explanation is the recent observation that the iodide-concentrating mechanism and cellular growth have the same sensitivity to endogenous thyrotrophin in the rat (5).

In an extension of this investigation, the effect of intraocular pituitary transplants in hypophysectomized mice was studied (6). The transplanted pituitaries were unable to counteract the atrophy of the target endocrines usually seen following hypophysectomy. In accord with the effect of hypothalamic lesions in the rat, however, the animals had an approximately normal thyroidal iodine metabolism. This could be decreased to the hypophysectomy level by administering thyroxin or greatly increased by the chronic administration of antithyroid drugs. Even following chronic thiouracil feeding, which produced 3-4-fold thyroid enlargement in the intact controls, however, there was no significant thyroid growth in the transplanted animals beyond the usual hypophysectomy level.

These experiments are in a preliminary state and no definite conclusions are justified as yet. One possible explanation of the data so far obtained, however, is that there are indeed two pituitary thyrotrophic fractions, the "metabolic" and "growth" factors. The metabolic factor does not seem to be regulated by the hypothalamus but is controlled, at least in part, by the level of circulating thyroxin which reaches the pituitary. The growth factor, on the other hand, seems to be dependent upon the direct contiguity of the hypothalamus with the anterior pituitary. Lesions which destroy the specific area of the hypothalamus, or transplantation of the pituitary will prevent any appreciable growth factor from being secreted. Such a "two factor" theory is entirely conjectural and must await fractionation of pituitary extracts into two distinct thyrotrophic "factors" for final proof.

No clinical significance should be ascribed to these observations in their present stage. Certainly the evidence discussed does not advance the theory that hyperthyroidism is due to emotional stimuli. Certain cases of acromegaly have been noted, however, in which there was a large thyroid gland with no evidence of hyperfunction, indicating that the "growth factor" may have been secreted in excess of the "metabolic factor."

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## TRAINING THE GENERAL PRACTITIONER

Several medical schools are making an attempt to acquaint the student with the general practice of medicine. The University of Tennessee College of Medicine has a general practice clinic manned by general practitioners. According to a reliable source, senior students spend five months with this group.

The University of Kansas sends its student directly into the homes of physicians, like the preceptorship of old. Students at the Medical College of Virginia spend three weeks on what might be called home care service. They make house calls in city owned cars on patients in need of this type of care and report to an instructor later in the day. The same student is allowed to make hospital rounds on patients first seen in the home, to follow the progress of the case. The plan offers these young men and women an opportunity to study patients requiring ordinary care as well as children with measles, for example, or alcoholics in their home environment. They also see individuals during a heart attack or stroke; and attend the dying patient. A somewhat similar plan is going on in Boston. Here the outpatient clinic at Boston University sends its students on house calls to the residents of a selected square mile in the city proper.

These plans encourage more comprehensive care and may influence more students to take up general practice. This may be the first indication that the pendulum is swinging away from specialization.

## MORE STUDENTS NEEDED

During the past three years there has been a decided drop in the number of applicants to our medical schools. This is evident from the following chart, prepared by John M. Stalnaker, Director of Studies, Association of American Medical Colleges.

*A COMPARISON OF THE NUMBER OF APPLICANTS FOR THE PAST FIVE YEARS*

| Freshman Year | Number of Applications | Number of Individuals | Applications per Individual |
|---|---|---|---|
| 1947-48 | 56,279 | 18,829 | 3.0 |
| 1948-49 | 81,662 | 24,242 | 3.4 |
| 1949-50 | 88,244 | 24,434 | 3.6 |
| 1950-51 | 81,931 | 22,279 | 3.7 |
| 1951-52 | 70,678 | 19,920 | 3.5 |
| 1952-53 | 56,254 | 16,760 | 3.36 |

The same trend is occurring at the undergraduate level where the number of students taking the medical college admission (aptitude) test has decreased markedly. In 1948-49 almost 27,000 were tested; by 1951-52 the number had fallen to 12,000. This represents a loss of 15,000 candidates in four years.

The reasons behind these changes will afford any group of physicians a stimulating evening of debate. The question involves finances, politics, war, and the future of the profession. Meanwhile, let's recognize the fact that many of our schools will be forced to dig deeper into the barrel to fill their classes; they must sacrifice quality for quantity to meet the current demands for more physicians. Meanwhile the practicing physician can help by encouraging the better students to choose medicine as a profession. The idea that admission to a medical school is difficult or almost impossible is no longer tenable; let's forget this oldtime notion before it rebounds.

# MEDICAL ECONOMICS

The Medical Economics Committee. John R. Wolff, Chairman, Walter C. Bornemeier, Edward W. Cannady, Roland R. Cross, Jr., E. F. Dietrich, W. W. Fullerton, Edwin F. Hirsch, Frederic T. Jung, W. R. Maloney, Caesar Portes, William Requarth, Frederick W. Slobe.

# Blue Cross — Blue Shield Questions and Answers*

**Frederick W. Slobe, M.D.**

**Chicago**

## BLUE SHIELD

*What is the difference between the various Blue Shield certificates?*

The following is a brief summary of the more important differences only. For specific details the certificates and the Physicians' Handbook should be consulted, which are obtainable on request.

(a) The "General Blue Shield Medical Expense Indemnity Certificate" is the most widely held, covering over 80 per cent of Blue Shield members. It furnishes allowances toward general medical care, surgical care, obstetrical care, anesthesiology, radiography, radiation therapy, and clinical laboratory services. Coverage applies only to physicians' services for patients in hospitals except that obstetrical delivery is also covered in the home; fractures and complete dislocations in office or home; and radiation therapy for proved malignancy in the physician's office. Coverage for physicians' services rendered in the out-patient department of a hospital includes some specific operative procedures, x-ray service if rendered within 24 hours after an accident, and radiation therapy for proved malignancy.

(b) The "Special Series 'A' Blue Shield Subscription Certificate" is limited to employees of about thirty General Motors subsidiaries and their dependents, numbering in all about 40,000. It includes all the services specified in the "General Certificate" except those in the category of strictly medical care. For the services covered, allowances are the same as in the "General Certificate."

(c) The "Special Series 'B' Blue Shield Subscription Certificate" is confined to employees of certain steel companies and their dependents, numbering about 75,000. It includes only surgical and obstetrical coverage; hence, there is

*Because there are differences in the various Blue Cross and Blue Shield Plans in Illinois, questions and answers, unless otherwise specified, will refer to the Blue Cross Plan for Hospital Care and the Blue Shield Plan of Illinois Medical Service, both of which are statewide in operation with headquarters in Chicago.

Endeavor will be made by this department, if desired, to answer inquiries about other Blue Cross and Blue Shield Plans operating in Illinois.

no coverage for strictly medical care, anesthesiology, radiography, radiation therapy, or laboratory service. Allowances vary moderately from those in the "General Certificate." Surgical allowances, however, apply to services rendered both in the office and in the hospital. The schedule conforms to that of the Medical Service Association of Pennsylvania (Blue Shield), mutually agreed upon by certain steel companies, the steel workers union, and various Blue Shield Plans to give uniform coverage throughout the United States.

(d) The "Cost Certificates" constitute another category. In one of these, held by employees of a national employer, although services covered are the same as in the "General Certificate," individual allowances vary somewhat. Both the maximum surgical benefits for procedures and the maximum medical benefits per calendar year are higher. Medical benefits in the hospital begin with the first day. Surgical allowances apply both in office and hospital. In other "Cost Certificates" coverage is essentially the same as in the "General Certificate."

*Isn't the medical schedule unfair as compared to the others?*

It is difficult to compare a medical schedule based on per diem allowances with, for example, a surgical schedule based on fixed allowances for specific procedures. It is so much simpler to establish allowances for the removal of a gallbladder or giving an anesthetic for an appendectomy, because they are procedures of reasonable uniformity. But it seems impossible to establish an equitable, fixed allowance applying toward the care of diabetes or coronary disease; one patient might be in the hospital 10 days and another 40 days. Also, there is no uniformity in the severity of the illness of different patients who remain in the hospital the same number of days. One patient hospitalized only four days might have been seriously ill; another might have been admitted primarily for x-ray and laboratory studies. And so, although a per diem allowance seems the only alternative, when we try to determine what it should be, some of the same difficulties and uncertainties arise.

The present $3 allowance was selected as being in keeping with the existing rates charged our members and the allowances for other types of service. Instances occur when this allowance seems decidedly inadequate and unfair. At times, however, the per diem feature may be comparatively advantageous to the internist; sometimes the medical allowance exceeds the surgical in long stays where both allowances are granted because of concurrent specialized medical care. All allowances are based on averages, and, although a medically sponsored Plan has the advantage of flexibility, administration must remain standardized for about 80 per cent of cases. In some of the others, individual consideration may be given. It is realized that there is a wide discrepancy between the average charges of an internist in a teaching hospital in a large city and a general practitioner in a rural community. The internist, many of whose patients are sent to him chiefly for diagnosis or for consultation and who may see relatively few patients, may consider the Blue Shield per diem allowance as being quite inadequate. The same may apply to the psychiatrists, pediatricians and specialists in restricted fields of internal medicine. Unfortunately, these situations are special ones and it is difficult to set up specific allowances for them. By contrast, the charges of general practitioners in small towns will average much less.

Let us always remember that Blue Shield allowances neither fix nor have any relationship to physicians' charges. The physician, as always, establishes his own fee. Should we be unduly concerned, then, about the unusual case if the comparative allowances on the average are equitable?

In the evolution of insurance coverage for physicians' services, it was natural that surgical and obstetrical coverage developed first. The public seemed to want this because of the comparatively greater expense involved as applied to both physicians' and hospital charges. And, from the insurance standpoint, surgical and obstetrical coverage appeared more feasible because actuarial experience could be projected with reasonable accuracy, allowances could be established quite readily and because there was little danger of over-utilization . . since people do not have operations if the only indication is the possession of insurance. The penalty of utilization should exceed the benefits —an old insurance axiom. Further, administration is simpler and less costly, the facts being more readily ascertainable.

So, let us remember that coverage for strictly medical care has been hampered by the comparative recency of its inclusion in prepayment Plans, by the difficulty of estimating costs accurately, and because of the problem of over-utilization.

It is difficult to ignore the public acceptance of certain average fees for operations and for strictly medical care. If in the light of recent developments, this traditional appraisal is inequitable, the medical profession should correct it. Factors involved are the degree of responsibility involved and the law of supply and demand in a competitive situation. But the viewpoint should be that of the total problem rather than based on a comparison between specialties.

It is realized that a problem exists, and the matter is under constant scrutiny. If justified by experience, it is possible that future certificates may increase the per diem allowance during the early part of a stay when, for example, it exceeds three days. Thought is also being given to the feasibility of additional allowances for care of such conditions as coronary occlusion, diabetic coma, addisonian crisis, severe ulcerative colitis, anuria, etc.

*Why are the first three days of care in the hospital excluded from medical allowances?*

There were several factors involved in making the decision to begin medical allowances with the fourth day of hospital care. For example, stays of less than four days so often involve either minor ailments or admissions primarily for x-ray and laboratory examinations. Some of the latter may be of the elective type which could have been handled on an ambulatory basis. Cost of claim handling is a factor too, the cost of processing a $5 allowance being just as high as a $100 allowance. Why, then, it may be argued, is there coverage for a minor surgical procedure during a short stay? There is some inconsistency in this; perhaps it reflects a recognition of the greater insurability of known mandatory therapeutic procedures as compared to those which may be diagnostic or elective. And it assumes that the decision for hospitalization is based purely on the requirements of the case. Also, the elimination of the first three days could be considered as a deductible feature somewhat similar to the well-known practice in automobile insurance. It follows the coinsurance principle in which the insured person retains some responsibility.

In the "General Certificate" a partial adjustment toward the deletion of the first three days is made in stays of from four to eleven days, by allowing, for example, $10 for a four-day stay instead of $3, and $15 for a five-day stay instead of $6. Actually, the three-day waiting period is under close scrutiny; it may be modified or eliminated entirely in subsequent certificates. Also, the Plan may give individual consideration to instances of serious illness, death and constant attendance during short stays.

*Why isn't all office care covered in the "General Blue Shield Certificate"?*

The question here involves a reconciliation between two viewpoints: first, the desire and need of the public to have such coverage; and second, the increased cost, which, of course, must be reflected in the rates charged the members.

It it could be assumed that the desire and need of the public are for all-inclusive coverage, then, of course, office care should be included. This point, however, is debatable. There are many who hold that the chief need is to furnish allowances toward the more costly types of care, based on hospital and physicians' charges and loss of time. Most of such care is rendered in hospitals. It is open to question whether most people are concerned about allowances covering office care. Many unions, however, are quite insistent upon as broad a coverage as possible and have a decided preference for "service" Plans where the allowance is accepted as full payment for families within a certain income limit.

Those in favor of comprehensive coverage emphasize its importance in combating the threat of compulsory health insurance. Those opposed stress the value of the retention of responsibility by the individual based on the coinsurance principle. Comprehensive coverage has great appeal to those who approach medical indigency; its appeal to others appears to be less obvious.

Administrative difficulties arise especially with strictly medical office care. Much of such care is of an elective nature with the resultant danger of over-utilization. Actuarial predictions have been found to be quite uncertain. Some Blue Shield Plans have had a disastrous experience with it and it needs considerable study before it will have more general adoption.

That is why, for Plans which include such coverage, the first two or three visits are often excluded.

These difficulties are much less applicable to surgical office care, for which inclusion there is much logic. When Blue Shield benefits apply only to surgical procedures performed in hospitals (in-patient or out-patient), there may be a tendency to shift the performance of some of these minor procedures away from the doctor's office. The conscientious physician will not allow the existence of hospitalization or medical care insurance to be the deciding indication for performing the operation in a hospital, but sometimes the pressure and insistence of the patient makes it difficult for him to decide otherwise. Illinois Medical Service has seriously considered including a modified schedule for office surgery in its "General Certificate," and, indeed, would probably have had such coverage by this time had not other factors intervened. It realizes that it is logical to furnish coverage for office surgical procedures if benefits apply to the same procedure when they are performed in a hospital. Forthcoming certificates may contain this inclusion. Indeed, some of the special certificates contain it now. The care of fractures and dislocations wherever treated, of course, has been covered since the inception of the Plan.

All benefits must be reflected in the rates charged the members . . and it is necessary to have a balance between the comprehensiveness of the coverage and a rate satisfactory to the public. During an inflationary trend and during periods of full employment an increase in rates is not frowned upon particularly. But when conditions change, it makes quite a difference. It also makes a difference whether the entire premium is paid by the employer. In the final analysis, it is for the public to decide upon the type of coverage desired and how much they are willing to pay.

## BLUE CROSS

*What is meant by the "service" principle of Blue Cross?*

The "service" principle is one of the basic tenents of Blue Cross philosophy. This means that benefits are furnished in the form of hospital services which are paid for by Blue Cross, thus differing from indemnity insurance coverage where money is paid to the member who, himself, is liable for the hospital bill. The "service" principle, in large measure, frees the patient from financial worry when hospitalization is necessary.

Closely related to the "service" principle of Blue Cross is the important feature of unlimited benefits for the eligible admission. This means the full cost of semiprivate room accommodations, payment of the full hospital charges for drugs, dressings, anesthesia, opearting room and delivery room charges, etc. — all without limit within, of course, a prescribed length of hospitalization. There are restrictions and exclusions in certain certificates, for example, x-ray service is not included in the Cooperative Certificate. But these are exceptions. The furnishing of unlimited service benefits remains one of the outstanding features of Blue Cross.

*Why do not Blue Cross benefits apply to hospital admissions primarily for x-ray, laboratory or other types of professional study?*

The cue to the answer of this question is found in the reply to the preceding question concerning the service principle and unlimited benefits. Unlimited service benefits mean that members are protected against the catastrophic cost of certain hospitalizations. To furnish this and to maintain a premium rate which is commensurate with the ability of most people to pay, preclude covering the short elective admissions when they are chiefly for purposes of professional study. Most of such admissions are for a few days only, some are purely elective and optional, and some could be handled on an ambulatory basis. The chief indication for many of these admissions is for x-ray and laboratory examinations. They can be included under the broad category of "professional study," which includes admissions to make a primary diagnosis, to confirm a previously made diagnosis, or to determine prognosis or progress. Also included are admissions primarily for observation and checkup.

The decision for hospitalization rests entirely between the physician and the patient, and the sole prerogative is theirs. And the value of hospitalizing many patients for the above indications is well recognized. But Blue Cross cannot cover such admissions and at the same time furnish unlimited service benefits for the mandatory type of hospital admission with its po-

(*Continued on page* 359)

# CORRESPONDENCE

## C.M.S. ANNUAL CLINICAL CONFERENCE

March 3rd, 1953, will mark the opening day of the 9th annual Clinical Conference of the Chicago Medical Society. This Conference is designed to be of interest to both the specialist and the general practitioner. It will be held at the Palmer House in Chicago and will present a variety of subjects setting forth the latest information available to the medical profession.

Conducting the Conference will be a faculty ranging from 35 to 40 outstanding speakers each offering a presentation relating to their specialty. In addition another group will give daily teaching demonstrations which will include the presentation of patients. They will emphasize the actual technique to be employed in handling orthopedic, medical and pediatric problems. In addition to holding these demonstrations each day, there will be a panel discussion at a round table luncheon presenting topics of timely interest.

Our technical exhibitors are eager to present their latest advances in the field of medicine which will enable the doctor of today to treat his patient most effectively. The scientific exhibitors will demonstrate the handicraft and professional worthiness of leaders of the profession and they will be found to be most worthy of study.

This is an activity of the Chicago Medical Society for its membership to whom no fee is charged. Those who are not members of the Chicago Medical Society are asked to register for the four days at the nominal fee of $5.00.

This is the time to set up your arrangements so these four days in March will permit you to come to the Palmer House and not only visit with physicians from all sections of the United States and Canada but likewise hear and see the latest developments in modern medicine.

## BUILDING FOR THE FUTURE

Organization work has one objective—that of unifying the efforts of all individual members to enable them to work in harmony and orderly fashion.

It is the earnest desire of the Woman's Auxiliary to the Illinois State Medical Society to have an auxiliary in each county. Where this is not feasible because of numbers, we would like to have member-at-large. A chairman appointed for this purpose shall keep all members-at-large informed on auxiliary matters.

Women today are engaged in many fields of

activity and feel that they have not the time for anything more. We propose to present to them the fact that this is a privileged organization, and one to which only the wives of doctors may belong. We have a common goal.

The organization committee is composed of the president-elect and the district councilors. Any county desiring information or help should contact their councilor. They are as follows: First district, Mrs. J. B. Lundholm, Rockford; Second district, Mrs. R. E. Davies, Spring Valley; Third district, Mrs. Paul Bucy, Chicago; Mrs. Cyril L. Hale, Chicago; Mrs. Carlo S. Scuderi, Chicago; Fourth district, Mrs. William H. Johnson, Galesburg; Fifth district, Mrs. Henry Bertchold, Springfield; Sixth district, Mrs. Carl Hagler, Quincy; Seventh district, Mrs. Charles Downing, Decatur; Eighth district, Mrs. A. R. Brandenberger, Danville; Ninth district, Mrs. Douglas Lehman, Harrisburg; Tenth district, Mrs. R. B. Ellis, East St. Louis; Eleventh district, Mrs. E. S. Leimbacker, Joliet.

Organization alone is not our final goal. It must be implemented by action. Unless each individual member benefits directly it is of no avail. We strive for growth in numbers of members and achievements; we cannot attain the latter without qualified and active members. It is the sincere hope of the chairman that each individual member will consider herself a part of the organization committee.

We must continue building to benefit from the work that has already been done.

Mrs. Henry Christiansen
Organization Chairman
Woman's Auxiliary to the
Illinois State Medical Society

## GRADUATE INSTRUCTION IN INDUSTRIAL MEDICINE

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of Fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of industrial medicine. Any registered physician, who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the American Medical Association may apply for a Fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.)

The course of instruction consists of a two-year period of intensive training in industrial medicine, followed by one year of practical experience under adequate supervision in industry. Candidates who complete satisfactorily the course of study will be awarded the degree of Doctor of Industrial Medicine.

During the first two years, the stipends for the Fellowship vary, in accordance with the marital status of the individual, from $2,100 to $3,000. In the third year the candidate will be compensated for his service by the industry in which he is completing his training.

A one-year course, without stipend, is also offered to qualified applicants.

Requests for additional information should be addressed to the Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

## CLINICS FOR CRIPPLED CHILDREN LISTED FOR JANUARY

Twenty-four clinics for Illinois' physically handicapped children have been scheduled for next month by the University of Illinois Division of Services for Crippled Children. The Division will conduct 19 general clinics providing diagnostic orthopedic, pediatric, speech and hearing examinations along with medical social and nursing services. There will be 4 special clinics for children with rheumatic fever and 1 for cerebral palsied children.

Clinics are held by the Division in cooperation with local medical and health organizations, both public and private. Clinicians are selected among private physicians who are certified Board members. Any private physician may refer or bring to a convenient clinic any child or children for whom he may want examination or may want to receive consultative services.

The January clinics are:

January 7 — Hinsdale, Hinsdale Sanitarium

January 8 — Elmhurst (Rheumatic Fever), Memorial Hospital of DuPage County

January 8 — Mt. Vernon, Masonic Temple

January 8 — Clinton, Christian Church
January 8 — Sterling
January 9 — Evanston, St. Francis Hospital
January 13 — Peoria, St. Francis Hospital
January 13 — East St. Louis, St. Mary's Hospital
January 13 — Danville, Lake View Hospital
January 14 — Joliet, Will County T.B. Sanitarium
January 14 — Alton, Alton Memorial Hospital
January 15 — Rockford, St. Anthony's Hospital
January 15 — Springfield, St. John's Hospital
January 16 — Chicago Heights (Rheumatic Fever), St. James Hospital
January 20 — Aurora, Copley Memorial Hospital
January 20 — Quincy, Blessing Hospital
January 20 — Peoria, St. Francis Hospital
January 20 — Salem, American Legion Hall
January 21 — Evergreen Park, Little Company of Mary Hospital
January 21 — Springfield (Cerebral Palsy), Memorial Hospital
January 22 — Bloomington, St. Joseph's Hospital
January 22 — Cairo, Public Health Building
January 23 — Chicago Heights (Rheumatic Fever), St. James Hospital
January 27 — Effingham (Rheumatic Fever), Douglas Township Building

## DEPARTMENT OF PUBLIC WELFARE NEEDS PHYSICIANS

The Illinois Department of Public Welfare and the Illinois Civil Service Commission have issued a call for more applicants for current examinations for Physician I and Tuberculosis Control Physician I.

Higher starting salaries for the positions were announced recently by Director Fred K. Hoehler of the Welfare Department because of the shortage of professionally trained medical personnel in State Institutions.

Oral tests are held as often as a sufficient number of persons apply.

Physicians who satisfactorily complete three years of service with the Department of Public Welfare are eligible for an educational leave of absence with full pay to conduct research or educational projects approved by the Department.

Additional information and application forms may be obtained from local offices of the State Employment Service or from the Civil Service Commission, Armory building, Springfield.

## POSTGRADUATE COURSES AT UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

Review courses for practicing physicians during 1953 are scheduled as follows:

Internal Medicine

Diseases of the Heart — March 16-20

Electrocardiographic Diagnosis — March 23-28

Recent Advances in Therapeutics — March 30-April 2

Diseases of Blood and Blood-Forming Organs — April 6-10

Metabolism and Endocrinology — April 6-10

General Practice — April 13-24

Obstetrics — January 21-24

Gynecology — February 25-28

Ophthalmology — April 20, 21 and 22

Roentgenology, Diagnostic — April 6-10

Further information may be obtained by writing to: H. H. Cummings, M.D., Chairman Department of Postgraduate Medicine, University Hospital, Room 2040, Ann Arbor, Michigan.

# ORIGINAL ARTICLES

# Present Trends in the Treatment of Osteomyelitis

**James K. Stack, M.D., F.A.C.S.**
**Chicago**

"Present Trend" articles are numerous today because the management of disease is profoundly affected by constant and rapid pharmaceutical advances in the fields of synthetic and biologic chemotherapeutic agents. These new discoveries and the applications of new principles have made textbooks an uncertain way of keeping abreast of the times. Indeed, they are like new airplanes, obsolete when they are first flown because advance models are already on the drawing boards.

Since the newer treatment methods are concerned principally with the hematogenous forms of osteomyelitis, this paper deals largely with that subject. The chronic forms of the disease, such as (a) the residuum of the acute phase, and that secondary to open infected fractures, also have been influenced by the antibiotics, but to a lesser extent than the acute blood-borne variety. Considerable progress has been made, however, in the treatment of the chronic types by the application of enzyme products used as debridement agents (tryptar, streptokinase, streptodornase, veridase, etc.). These substances exert a favorable influence on the surfaces of sloughing and granulating wounds involving bone. They, with the antibiotics, have shortened the preparation period of such wounds for reconstruction and have made bone and skin grafting procedures possible at an earlier time and with a greater assurance of success and ultimate function.

Basically, acute hematogenous osteomyelitis has not changed and, contrary to some thought, it is not by any means extinct. Frequently, the

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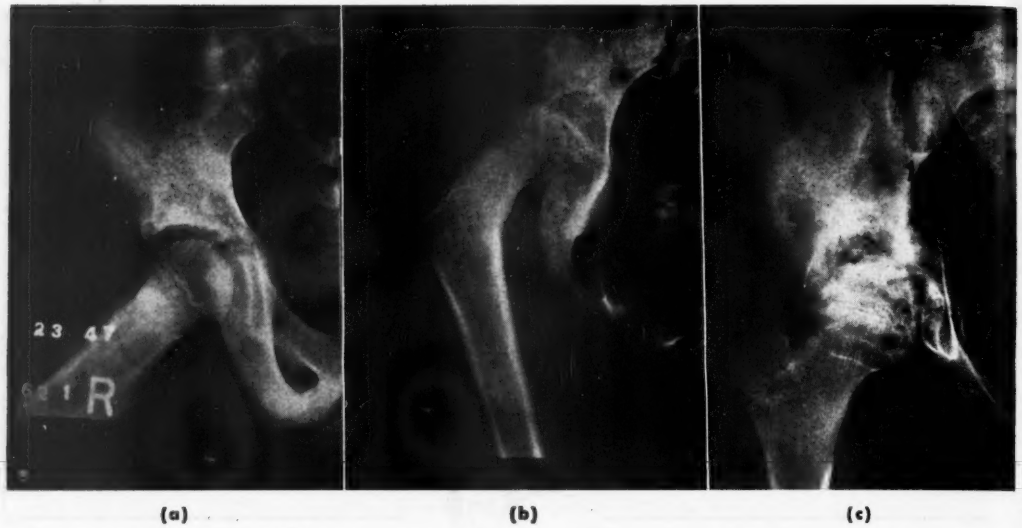
**Read before the Illinois State Medical Society, May 14, 1952.**




(a) (b) (c)

**Figure 1. (a) early change in the ilium. (b) rupture into the pelvis and hip, resulting in dislocation of the latter. (c) Ultimate destruction of the hip and the lower portion of the sacroiliac joint.**
**Penicillin sterilized the intrapelvic abscess without the necessity for incision and drainage. Sequestration did not occur. All dead bone was absorbed and subsequently replaced, leaving ankylosis of the hip and sacroiliac joint. Such an end result could have been prevented by early recognition of bacteriemia and giving adequate amounts of an appropriate antibiotic to a sensitive organism.**

comparison is made between this condition and acute suppurative mastoiditis. A man in residency training on an otolaryngology service might never see a mastoid operation, but it cannot be said that his colleague on the pediatric, surgical, or orthopedic service would not see blood-borne osteomyelitis. Smith[11], speaking of ear suppuration, says that while antimicrobial agents have greatly modified these inflammatory processes, the incidence of chronic otitis media and middle ear fibrosis has not been correspondingly decreased. Antibiotic therapy produces rapid decrease in fever and relief of pain, which may lull the physician into a false sense of security and cause him to neglect other time-proved useful measures. This also holds true for acute osteomyelitis, which remains a complication of bacteriemia and there may be concomitant suppurative foci in other organs. However, the ends of long bones (metaphyses) of infants and growing children have anatomic peculiarities that predispose to infection. The red marrow of these areas has an abundance of blood vessels and the flow of blood is sluggish because of the relatively large size of the capillary loops. This allows for the deposition of bacteria, especially if there is any inflammatory congestion such as might be brought about by previous recent trauma. The long bones are not alone in their susceptibility, as the flat bones of the pelvis and the ribs also become involved. Suppuration within a joint is closely related and is seen particularly in infancy. In this antibiotic era while the morbid processes of osteomyelitis remain the same, the clinical picture and treatment have changed to the extent that it is practically a new disease.

The child with the high fever and a toxic state when first seen usually will not have symptoms localized to any part of the skeletal system. At this point, a positive blood culture might be obtained. However, since the original examination is probably done at home or in the outpatient department of a hospital, and the diagnosis is not obvious, penicillin often is administered. There is an adage, used jokingly, that when confronted with an obscure illness, prescribe penicillin, and if the patient isn't well in four days, then do a physical examination. Unfortunately this advice sometimes is taken seriously. If penicillin is given in adequate amounts over a proper period of time to a sensitive organism, sterilization of the blood stream will follow and any incipient bone involvement will be aborted. However, if the dose is inadequate, the transient improvement in the general clinical picture that may result, will be just enough to delude the attendants. Meanwhile the organisms continue

to smolder in the vascular bony bed. If the drug is discontinued following this brief favorable response, the infection will flare up and produce the typical disease state. This, as before, is characterized by the destruction of bone tissue by the bacterial toxin. Thrombosis of vessels occurs and there is further damage from pus and the excessive tension that develops within this closed cavity. Then the Haversian system, cortex, periosteum, and the medullary canal may all be involved in various phases of destruction.

In the event that the involvement is in a relatively superficial area is affected, such as the upper or lower tibia, recognition of the disease will be simple. But even then, with the restoration of adequate plasma levels of penicillin, the process has a head start and some degree of bone destruction will be inevitable. In involvement of deeper bones, such as the upper femur, upper humerus, and the central ilium, early recognition will be difficult and widespread destruction may result. Figure 1 portrays such an instance. Figure 2 shows another form of hip joint destruction.

**Figure 2. Suppuration within the hip joint causing separation of the capital femoral epiphysis from the neck and the reduction of this epiphysis to a hopeless sequestrum. The primary bony focus was in the ilium, and reactivation was permitted by early withdrawal of antibiotic therapy.**

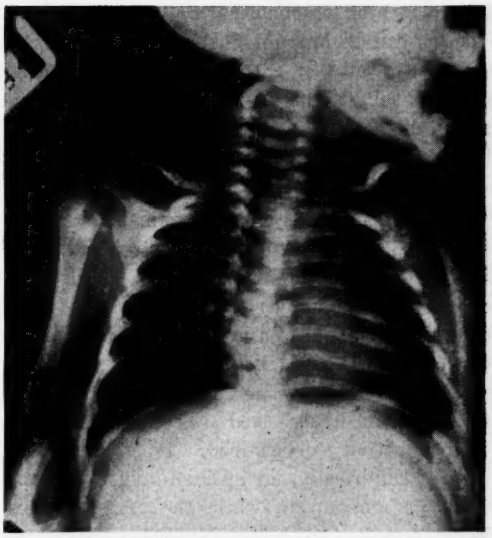


**Figure 3. Area of bone destruction in the metaphysis of the right humerus of an infant. The shadow about the shoulder produced by the edema is noted before the bone destruction is visible.**

In the newborn and the young infant, early recognition of acute hematogenous osteomyelitis presents a somewhat different problem. Here the onset is much more insidious. It need not be accompanied by great toxemia; the picture may be one of simple unrest, lassitude, a feeding problem, or a gastrointestinal upset. There may be only slight fever and leukocytosis. Other objective findings of systemic infection may not be notable. Since the natural position of the newborn infant is flexion, the involved bone or joint may appear on inspection to be similar to the normal bone on the opposite side. Swelling may not be obvious because of the infant's heavy layer of subcutaneous fat. Local heat may be noted, but redness will be present only late in the disease because of the depth of the initial lesion. While watching the child, a suggestion of the presence of osteomyelitis may be obtained by the relative inactivity of the limb on the affected side.

X-rays are perhaps more helpful at an earlier period in the cases of osteomyelitis in infancy than in the older age groups. Bone destruction proper may not be seen early, but there will be other signs if the x-rays are examined critically and, if necessary, compared with films of the uninvolved side. For example, there may be some

joint widening or abnormal soft tissue shadows such as can be brought on by a sterile effusion within the joint or edema around the involved infected bone. This is particularly true in the region of the hip, knee, and shoulder — common locations of the disease in the very young. Figure 3 is an illustration of these points.

Regardless of what trends treatment may take, accurate diagnosis of the bone involved and of the specific organism are most desirable before treatment is instituted. In the phase of bacteriemia before it is complicated by osteomyelitis, a working diagnosis should be made, the possibilities recognized, and adequate treatment started while the organisms in the blood are being isolated and their sensitivity determined. It is permissible to give empirically, an antibiotic such as penicillin or aureomycin while the organisms are being tested. In other instances, where the picture is not so clear, the so-called broad spectrum antibiotics (terramycin and chloramphenicol) may be administered while culture and sensitivity tests are being run.

The Staphylococcus aureus is the offending organism in about 85 per cent of cases of acute hematogenous osteomyelitis in children over six months of age. Therefore if this disease is suspected it is desirable to use penicillin or aureomycin early and adequately but only to the point where the identification of the organism has been established. Fortunately, most strains of Staphylococcus are not naturally resistant to penicillin and they acquire this resistance slowly, as compared to streptomycin. The important point in preventing acquired resistance in bacteria is to use adequate amounts of the specific antibiotic early and often and thus prevent prolonged courses of treatment. It is the prolongation of unsuccessful and/or non-specific or empirical treatment that is harmful to the patient and favorable to the bacteria because this is the way resistant strains develop[12]. It recently has been shown[5] that out of 50 isolated strains of Staphylococcus aureus, 34 were penicillin resistant, while 14 were resistant to streptomycin also. All were sensitive to aureomycin. Penicillin resistance has not yet become a problem in the treatment of gonococcal or hemolytic streptococcal infections, but the incidence of penicillin resistant strains of Staphylococcus is increasing at an alarming rate[7,12]. In vitro resistance has been correlated with therapeutic failure. The resistant strains have been shown to manufacture large amounts of penicillinase and the sensitive strains none. One author[7] has stated: "The steadily increasing resistance of the Staphylococcus to penicillin is such that one shudders to contemplate the clinical significance of this in another decade."

A great deal of work is being done on the relationship between bacterial metabolism and the various antibiotics. Garrod[4] classifies bacterial reaction to these drugs in four ways: (1) suppression, (2) habituation, (3) dependence, (4) stimulation.

Suppression is the desired effect and it may be lethal or inhibitory to the organism. Habituation means acquired resistance. Dependence is a nutritional or metabolic phenomenon, best exemplified by the peculiar behavior toward streptomycin of certain strains of the tubercle bacillus. When this organism becomes actually dependent upon the drug, a patient infected with such a strain could be made worse by its administration and, conversely, improved by its withdrawal. While streptomycin is the antibiotic most likely to produce the phenomenon of dependence, it has been demonstrated with chloramphenicol (Friedlander's bacillus) and penicillin (meningococcus). There have been no reported instances of staphylococcic strains reaching the stage of dependence. Stimulation is the opposite of the aim of treatment as the antibiotic actually stimulates the organism instead of suppressing it. There is good evidence to the effect that this phenomenon is produced by concentrations lower than that required to inhibit growth. The Arndt-Schulz law stated 60 years ago by the Danish bacteriologist is translated: "Poisons are stimulants when given in small doses." Is this law applicable to antibiotic chemotherapeutic agents? There is evidence that it is.

The quandary that we face today in the early treatment of bacteriemia and acute hematogenous osteomyelitis lies between the emperical administration of antibiotics in the early phase of the disease before the specific organism can be known and its sensitivity determined, and the risk of adding to the ever-increasing number of resistant staphylococcic strains by this method of treatment. Another risk must be considered. That is the astonishing increase of other organisms that are not sensitive to the antibiotic in us.

B. Pyocyaneus may flourish in the urinary tract and Candida albicans may cause refractory lesions about the anus, vagina, and other mucous membranes. Such effects of a given drug on the total bacterial flora of the body give pause to the indiscriminate use of antibiotics[13].

Once osteomyelitis has been established reaching the point of abscess formation and demonstrable bone change, the abscess cavity should be evacuated without entering the bone proper. This serves to obtain material for identification of the bacteria, release pressure, and makes it possible to instill solutions of antibiotics locally so that there will be effective levels of the drug in the involved area. The combination of local instillation and systemic treatment is an accepted form of treatment. It is probably not important to decide between needle aspiration and superficial incision, as they both accomplish the release of pressure and make possible local instillation[1,2,3,10]. During this phase of treatment, the patient should receive the same care as is given any severe systemic infection. In addition to the local treatment described the part should be kept at rest by splinting or cast application.

It is important to remember that massive doses of the antibiotic should be used as soon as identification of the organism is established and that reactivation of infection is always possible by too early withdrawal of the drug. If treatment fails because of improper selection of the antibiotics, inadequate dosage or delay in diagnosis, then the chronic phase of osteomyelitis will follow and is treated much the same way as in the pre-antibiotic era. With prolonged drainage, secondary infection of sinus tracts and ulcer surfaces will add to the problem. The drugs will have no effect on any sequestration of bone that occurred before the infection was brought under control. Dead bone will have to be removed and the cavities obliterated. But our task here is again made easier when efficient plasma levels of an antibiotic can be maintained during the phase of either natural or surgical reconstruction.

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## BLUE CROSS-BLUE SHIELD (continued)

tential of high associated costs and long duration without a corresponding reflection in the rates charged the members.

*What, then, is the criterion of Blue Cross eligibility?*

The criterion is that the condition is one which in itself requires hospital bed care and bedside nursing service. When such a situation obtains, Blue Cross benefits apply without limit except for a few exclusions in certain certificates.

As an example, a patient admitted with acute nausea, vomiting and abdominal pain may require hospital care for the condition itself even though a differential diagnosis must be made in the hospital based on x-ray, laboratory studies and observation. All hospital services within the terms of the certificate, however, are covered in such an instance if the patient's condition was one which, in itself, required hospital bed care.

# Shock

**Samuel G. Plice, M.D., F.A.C.P**
**Chicago**

Shock is a clinical state that we all know about, but do not know all about. It is characterized by pallor, rapid pulse and respiration, sub-normal temperature, decreased systolic pressure, low pulse pressure, subnormal temperature, restlessness, stupor, and coma.

Dr. LeVeen has called attention to the fact that shock is a syndrome having as its basis a profound alteration in metabolism. It is caused by any form of stress or injury which leads to a reduction in blood flow inadequate for normal cellular metabolism.

For years the symptoms were attributed to increased capillary permeability, but as Dr. LeVeen has shown, this is no longer considered. If an individual has an inadequate peripheral circulation for a long enough time, he will be in a state of shock.

We learned about shock first in trauma, hemorrhage and burns. We recognized reversible and irreversible shock. Then we became aware that shock was present in such medical disorders as metabolic diseases, nutritional disturbances, severe infections, heart disease, drug and foreign protein reactions. In a sense, everyone dies of shock, because when the heart stops, the peripheral circulation becomes inadequate.

Claude Bernard wrote about the "internal environment" and the need for preserving it. We have a cardiovascular system to preserve the internal environment. When the circulatory system becomes inadequate, the internal environment ceases to be preserved. While this is going on, we say that the individual is in shock. This results in the profound alteration of metabolism that Dr. LeVeen has told us about.

The circulatory system is provided by nature with provision for meeting emergencies which threaten to exceed its limitations. There is a complicated arrangement of physical, chemical, endocrine and medullary reflex controls to divert blood from less essential use to preserve the nutrition of heart and brain. Decreased blood flow to the kidneys initiates the renin mechanism to raise blood pressure at the same time the antidiuretic hormone of the posterior pituitary increases tubular reabsorption of salt and water. Meanwhile the adrenal medulla mobilizes blood by contraction of the spleen, mesenteric veins, splanchnic vessels and cutaneous vessels. There is increased activity of the autonomic nervous system increasing venous tone. The heart increases its rate to circulate the blood more rapidly. Involved in this reaction are the kidneys, liver, spleen, nervous system and endocrine system.

In other words, nature has set up a stereotyped reaction to stress, which is what Selye calls the alarm reaction, Shorr calls the initial compensatory phase, and Davis calls the anoxic phase.

Shorr has an ingenious explanation for the peripheral vascular reaction in this initial or compensatory phase. An excitor material, which he calls Vaso-excitor-material, VEM, is produced by the renal cortex under conditions of hypoxia. This increases the activity of the precapillary sphincters, restricting blood flow in the capillary bed to thoroughfare channels in order to maintain an active venous return. It is upon this that the ability to respond to blood transfusion depends. If effective treatment is not available at this time, the second, decompensatory or irreversible phase begins. This is due to the elaboration of a vaso-depressor material, VDM, in the liver under anoxic conditions. This blood borne material paralyzes the precapillary sphincters diverting blood into side channels from which it is ineffectively returned to the circulation.

In the case of severe infection, the shock could have several conceivable mechanisms. There might be cardiac failure subsequent to tachy-

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cardia. There might be peripheral arteriolar dilatation from hyperpyrexia. Dehydration from fluid loss or inadequate intake in addition to the above could in itself lead to renal hypoxia.

With regard to shock resulting from primary metabolic disorders, we may consider dehydration, acidosis, alkalosis, hypoglycemia and uremia as the most common. Anything leading to salt and water depletion decreases the blood flow and ultimately leads to hypoxia. Acidosis leads to sodium depletion and water loss. Alkalosis leads to fall in blood pressure as a result of arterial dilatation of vaso-motor origin. Hypoglycemia produces shock from injury of central nervous system, heart and liver.

Closely allied to these metabolic disorders are those resulting from disturbed nutrition. Starvation is known to produce prolonged circulation time, slow pulse, low blood pressure and low pulse pressure. Total serum protein decreases and with it the blood volume. The liver suffers injury. Similarly in Beri-Beri, the entire cardiovascular system is affected. There is peripheral arteriolar dilatation and ultimately hypoxia.

Cardiogenic shock is one of the commonest types seen today in cases of acute myocardial infarction. Here the mechanism is presumed to be failure of the left ventricle to maintain an adequate output, even though there is sufficient venous return and no decrease in total blood volume. Shock occurs in approximately ten percent of all cases and is associated with a mortality rate over ninety percent. In patients who are dying of chronic congestive heart failure evidence of shock may be added to the picture during the last days of life.

Finally we must mention foreign protein shock, various drugs such as Cocaine, Morphine, Quinine, Mercurial diuretics, and anaphylactic shock. The mechanism of these reactions is not entirely clear, but presumably anoxia is responsible.

In view of the various known situations in which "medical" shock can occur, we must seek a common denominator in order to administer intelligent treatment. This common denominator is hypoxia or anoxia. In the treatment of every medical situation we must therefore ever have before us the question of whether or not there is opportunity for anoxia. In infectious diseases we must consider the adequacy of oxygen, water, glucose, vitamin and electrolyte supplies to prevent shock. Likewise in the treatment of the various metabolic and nutritional diseases we must give thought to the possibility of the development of shock.

Manifestly the causative condition must be treated. That is recognition of the mechanism. This may require, fluids, blood, salt solution, alkalies, plasma albumin, thiamin chloride or oxygen. There seems little justification for the use of vaso-pressor substances in cases where there is no evidence of neurogenic shock. The pressor amines such as Nor-Epinephrin, Mephentermine, Paredrine, Desoxyephedrine, and Neosynephrine occasionally appear to be lifesaving. They sometimes increase blood pressure, coronary flow and peripheral resistance without other direct cardiac action. Intraarterial blood transfusion possibly combined with venesection appears to be worth an extended trial in cases of coronary occlusion with profound shock.

In summary, shock is present when there is inadequate blood flow to maintain the internal environment. Under these conditions nature responds with a mechanism to maintain satisfactory environment for the heart and brain. If the causative factors are not removed or corrected, this compensatory mechanism leads to a decompensatory or irreversible state.

# The Physiological Basis of Shock

**Harry H. LeVeen, M.D.**
**Chicago**

Although most of us think of shock as a circulatory derangement, the circulatory features of shock are now known to be only a part of a syndrome which has as its basis the profound alteration of normal metabolism. Nevertheless, we all recognize shock clinically by skin palor, a rapid weak pulse, low blood pressure, reduced venous pressure, shallow respirations and restlessness.

The classical theory, which evolved to correlate most of the known clinical and experimental facts, stated that the pathogenesis of shock was dependent upon a diminished circulatory volume which invariably accompanied shock. The reduced blood volume led to capillary ischemia, the damaged capillaries became unable to contain the circulating plasma which leaked into extra vascular spaces, and this sequence of events accounted for the hemoconcentration which was present. Blood volume determinations repeatedly confirmed the suspected reduction in the circulatory volume.

The classical theory failed to explain the progressive deterioration which sometimes occurred in shock even after adequate fluid replacement. Wiggers had emphasized that the initiating factors must be differentiated from the sustaining factors.

For a moment, I should like to limit my remarks only to a consideration of the shock which accompanies burns and severe blood loss. It has been from studies of this type of shock that the pathogenesis of all shock has been finally worked out.

Cope investigated the problem of capillary permeability in burn shock with a radioactive dyestuff which attached itself to the plasma albumin. His findings indicate that although protein escapes through the locally damaged capillaries there is no generalized increase in capillary permeability. Where then do the plasma proteins go? The classical theory indicated that they escaped into the extravascular spaces. Yet, the proteins do not escape from the vascular compartment even in comparatively late shock.

Radioactive tagging was used to study the problem of the disappearance of plasma from the circulatory system. An amino acid containing radioactive sulfur was fed to dogs. The animals incorporated the radioactive amino acid into plasma proteins which, of course, made those proteins radioactive. Animals in shock were then infused with this radioactive protein. The fate as well as the location of the tagged protein was determined. The plasma protein did not leak from the capillary bed, but instead was rapidly metabolized to urea in shock whether due to burns or hemorrhage.

An explanation must be given for this rapid metabolism of plasma proteins which occurs in shock. Also, is this a beneficial or a harmful reaction?

Cuthbertson was one of the earliest investigators to show that trauma, whatever its nature, resulted in a negative nitrogen balance. This occurred clinically even after relatively nonserious fractures. This loss of protein following trauma was unfortunately called a toxic loss of nitrogen. Because altered protein metabolism was held to be important in surgical morbidity and mortality, protein hydrolysates and plasma were liberally infused in an attempt to preserve the nitrogen balance. The liberation of adrenocoriticotropic hormone (ACTH) by the pituitary gland is responsible for the toxic loss of nitrogen. A negative nitrogen balance does not occur after trauma to hypophesectomized animals. Also, a negative nitrogen balance of a similar type can be produced in normal individuals either directly by the injection of cortisone or indirectly by the liberation of cortisone from the adrenal glands brought about by the injection of ACTH. Cortisone causes this negative nitrogen balance by transforming body pro-

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tein into sugar, a process called gluconeogenesis. The end result of this transformation is a dimunition of body protein stores, an increase in the carbohydrate stores, and the formation and excretion of urea. This mechanism is responsible for the hyperglycemia which is sometimes found to occur in patients shortly after trauma.

Even though this endocrine mechanism is responsible for the rapid reduction of plasma proteins during shock it can scarcely be considered the sustaining mechanism. It is known to be a beneficial reaction which accounts for the ability of normals to survive much greater trauma than adrenalectomized animals.

The increased production of sugar even at the expense of body protein might indicate that there is a great need for carbohyrate in shock. It also suggests that biochemical and metabolic alterations are fundamental features in the development of shock.

One biochemical defect which had been recognized for some time is the occurrence during shock of a lactic acidemia with a resultant reduction in $CO_2$ combining power. Some have even suggested that the acidosis be combated with sodium bicarbonate infusions. A similar lactic acidemia can be made to occur in hepatectomized animals because they are unable to convert lactic acid to glucose. The liver is therefore thrown under suspicion as the culprit in shock. The shocked animal produces lactic acid from the anaerobic metabolism of glucose and is unable to further oxidize this lactic acid or reconvert it to glucose. Wilhelmi and Long showed that this defect and other biochemical defects can be mimicked in the rat by occlusion of the hepatic artery for a brief interval. Both the biochemical and the clinical features of hemorrhagic shock are simulated by this temporary occlusion of the hepatic artery. When the duration of occlusion is prolonged, the shock is more severe. Occlusion for more than one hour produces irreversible shock which is clinically and biochemically identical with irreversible hemorrhagic shock. The hypoxic liver is not only unable to metabolize lactic acid, but it is, in addition, unable to form urea from amino acids and ammonium salts. It is this impaired liver function that accounts for the sustaining mechanism in shock.

Anatomically the liver is situated in a very vulnerable position with regard to its blood oxygen supply. The liver derives approximately 75% of its blood supply from the portal vein, and the portal vein contributes at least 50% of the oxygen supply of the liver. Normally, the portal vein blood is 75% saturated with oxygen. In hemorrhage, blood flows through the tissues more slowly. All the available oxygen is extracted in the gut from the sluggishly flowing blood. The oxygen saturation of the portal vein blood drops to 20% early in shock. The output of the hepatic artery in shock is also reduced making the hepatic oxygen deficit even greater. To make matters worse, the liver offers increased resistance to blood flow very early in hemorrhage which further contributes to a reduction in liver blood flow. All these factors make possible a high degree of liver anoxia early in shock, and to an extent greater than found in other tissues.

The development of fatal hemorrhagic shock in dogs can be prevented if the liver is perfused with blood from another animal. This cross circulation maintains the blood oxygen supply of the liver while other tissues are not protected from the anoxic effects of hemorrhage. Yet, this difference is sufficient to protect the animal from the advent of irreversible and fatal shock.

Finally, we must explain the circulatory collapse by which we recognize shock clinically. Red blood cells tagged with radioactive iron become trapped in peripheral capillary loops. Many have long considered shock as a form of peripheral circulation failure. This mystery of peripheral circulatory failure has been solved by Shorr's demonstration of a circulating vasodepressor material V.D.M.

V.D.M. is produced by ischemic muscle and liver tissue. V.D.M. produces a paralysis of the precapillary sphincters so that they no longer respond to nerve impulses or adrenalin. This opens a wide capillary bed to the circulating blood and leads to the trapping of erythrocytes. It increases the volume capacity of the vessel system at a time when the circulating blood volume is diminishing. The net result is a fall in venous pressure, a decreased cardiac output, and a drop in blood pressure. A compensatory increase in pulse rate is inadequate in maintaining the cardiac output and may even be detrimental.

Although it had been suspected that a toxic substance was circulating in the blood in shock, its presence had not been verified by injecting the blood of shocked animals into normals. The

fact that V.D.M. is rapidly metabolized by the normal liver accounts for this discrepancy. V.D.M. is not metabolized by the ischemic liver and accumulates in shock. V.D.M. can be identified and assayed only by the microscopic observation of the effect it will produce on the vessels in the mesentaries of small rodents. The development of methods for the microscopic observation of live tissue has been an important factor in the discovery of V.D.M.

Liver ischemia thus explains quite well the biochemical and peripheral vascular phenomena in shock due to burn or hemorrhage. It can also explain most of the other types of shock.

Shock results upon the release of a tournequet which has remained on an extremity for a prolonged period. In this form of shock, local anoxia causes vascular damage and leakage of fluid similar to that occurring in burns. This local loss of fluid is the inciting mechanism since compressive dressings may prevent the development of shock as they do in burns. V.D.M., liberated by the anoxic muscle, also plays a role in this form of shock.

Although liver ischemia plays the important role in the pathogenesis of shock, other tissues are of course injured by the hypoxia which accompanies shock. For instance, permanent brain damage may result, however, a central nervous system hypoxia is involved neither in the pathogenesis of shock nor in the survival from shock. The generalized hypoxia produces a change in cell permeability resulting in an expansion of the sodium space. In other words, sodium enters cells from which it had been previously excluded. The expanded sodium space increases the body's requirement for sodium in shock, a factor which does seem to influence survival in some forms of shock. Potassium, which had previously been confined to the intracellular compartment leaves the cell and accumulates in the serum and interstitial space. As the blood pressure falls, the kidney no longer forms urine and the nitrogenous waste materials accumulate in the blood. Late in shock, there is also an element of central circulatory failure. The tissue anoxia which occurs in shock damages all tissues, but in no tissue is the need for oxygen more vital than it is in the liver.

The metabolic functions of the liver may be impaired by mechanisms other than hypoxia. In this event, shock may be a part of the clinical features of the disorder. For instance, toxins may alter the metabolic functions of the liver. This offers an explanation of the shock which invariably occurs in fatal infections with B. Welchi.

If part of the normal pituitary adrenocortical defense mechanism is non-functional, shock may result from mild stress. The crisis of Addison's disease is a form of shock. The production of ACTH and Cortisone is a standard reaction of the body to any form of stress. The administration of additional ACTH or Cortisone does not improve the survival to stress with the possible exception of some bacterial stresses. In the new born, the pituitary may not respond to stress for a period of two weeks. The use of ACTH would then be desirable.

Shock accompanies a diverse number of medical and surgical disorders, and it is wrong to identify it solely with burns and hemorrhage.

# Obstetrical Shock

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Shock, in the obstetrical patient, is usually directly related to blood loss. Maternal deaths from hemorrhage and the resulting shock from blood loss is one of the leading causes of obstetrical deaths in the United States. It, therefore, behooves us, the medical profession, to analyze carefully the causative factors contributing to this loss of life.

The medical profession is cognizant of its duty in this regard and throughout the United States many cities and states are investigating every maternal death to determine if the death is preventable or has preventable factors. If the death is placed in one of these two categories then a further classification is determined. Who is responsible for the death, the patient, the doctor, or the hospital. I am proud to say that most deaths from hemorrhage and shock have been found to be non preventable. I bring this to your attention to show that your medical profession is alert and is doing something about loss of life from hemorrhage.

The symptom complex of shock from hemorrhage is well known. In obstetrics it usually follows hemorrhage which produces a marked reduction of circulating blood volume; slowing of the peripheral blood; reduction of cardiac output and a fall in blood pressure. Hemorrhage, the precursor of shock, deserves a few words. Schuman is speaking of the large hemorrhage which is quickly recognized and the slow, dribbling, continuous bleeding often overlooked or the resulting blood loss underestimated until the patient falls into shock has cleverly phrased these words: "Hemorrhage, which is alarming but not dangerous, and hemorrhage which is dangerous but not alarming." The Philadelphia study of maternal deaths show that women dying of the effects of hemorrhage and shock survived delivery for an average of 5½ hours. This shows that death does not occur within a period of a few minutes. Hemorrhage with reduced circulating volume, slowing of peripheral and venous blood, fall in blood pressure, produces an oxygen deficiency which has a effect on all of the organs of the body especially on the kidney, liver and the foetus, if undelivered. A blood pressure of 60 mg. hy. systolic maintained for a period of time in the presence of shock can produce foetal death from anoxia. The role of oxygen deficiency has been discussed fully by Dr. LaVeen.

Shock is clinically classified as reversible or irreversible. Irreversible shock is a late and fatal stage of shock. It represents that stage of shock where the body can no longer respond to correct and adequate treatment. The patient will die even though the entire amount of blood loss is replaced. Dr. LaVeen has shown that this is due to liver anoxia of a severe degree.

The obstetrical conditions which often contribute to, or actually cause hemorrhage may be those conditions of early pregnancy such as ectopic pregnancy, incomplete abortion and the rarer conditions, hydatidiform male and chorio epithelioma. In the latter months of pregnancy placenta previa and abruptive placenta may produce ante partum hemorrhage. Prolonged labor, and the overdistended uterus of twin pregnancy often are associated with post partum hemorrhage.

Operative deliveries with lacerations may produce great blood loss. Any patient showing evidence of shock following version extraction or breech extraction without sufficient external blood loss should be suspected of having a ruptured uterus and the uterine cavity should be explored. Retained placental tissue is a cause of hemorrhage and often does not reveal itself for 48 hours, or more, following delivery. Shock from gynecological operative produces the same picture as surgical shock and Dr. Vaughan has completely covered this phase of the panel so that any comments would be repetitions. The

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treatment of hemorrhage and shock has advanced a great deal in the past ten to twelve years. The discovery of the RH factor and the establishment of blood banks has made blood readily available even in small hospitals. This time saving, at such a vital time, is a major contribution to treatment and we must avail ourselves of it at all times. Therefore, the prophalactic treatment of shock in obstetrics begins at the onset of pregnancy when the patient has an RH factor and blood typing done at the hospital where she will be delivered. Adequate prenatal care includes the treatment of any blood deficiency. Patients suspected of having placenta previa, abruptive placenta, twins, or in whom it is necessary to terminate a pregnancy by operative means, it is good judgment to have blood available before any operative procedure is started. This is real prophalaxis. Blood should be available for all prolonged labors. The correct handling of the third stage of labor and the judicious use of oxytocics will often prevent post partum hemorrhage.

The active treatment of shock is based upon the premise — *Prevent irreversible shock.* There is no real substitute for whole blood in the treatment of hemorrhage. Early, active, and adequate replacement of blood is imperative. In severe blood loss, blood can be infused from two or three different points: i.e. both arms and both legs. Blood may be infused under pressure when necessary. The maintenance of body heat and the stopping of blood loss must be accomplished if we are to succeed. It is not considered good surgical judgment to operate patients in shock because we may place them deeper in shock and possibly in irreversible shock. Usually blood can be infused faster than the bleeding and the patient can be brought out of shock to a great degree before surgery.

Our entire treatment of shock is early adequate replacement of whole blood to increase the circulating blood volume and supply oxygen carrying cells which will prevent hapatic anoxi and the liberation of vaso depressor material.

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# Common Scrotal Enlargements

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Enlargements of the scrotum occur relatively frequently and are often seen first by the general practitioner or internist. Because of the exposed position of the scrotum an accurate examination of its structures should be a simple matter and a diagnosis of the specific pathology causing the enlargement should present no particular difficulties. In addition, since there are but a few structures within the scrotum the number of pathological lesions is necessarily limited. In spite of these facts, the differential diagnosis of scrotal enlargements often presents a confusing picture to many physicians. If the anatomy of the scrotal contents and the known common causes of scrotal enlargement are kept in mind, an exact diagnosis should be made in most cases.

A carefully taken history will enable the examiner to eliminate certain conditions and reduce the diagnosis to one of several possibilities. The important specific facts which should be determined in the history are:

(1) Onset of swelling — acute or gradual.
(2) Duration of the swelling.
(3) Presence or absence of pain.
(4) Preceding trauma.

After these facts have been ascertained, a careful examination of the scrotal contents should yield a definite diagnosis. It is to be emphasized

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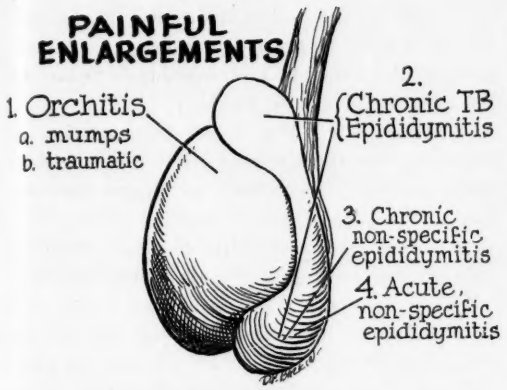


**Figure 1.—Diagramatic representation of painless enlargements of the scrotum.**

that the examiner must palpate for specific structures within the scrotum and not just casually feel an obviously enlarged mass. Many clinicians attempt to feel only the testis but this organ is the least common site of pathology within the scrotum. The other structures which should be carefully and specifically examined are the head and tail of the epididymis, the tunica vaginalis testis, the vas deferens, the supporting structures of the spermatic cord and the external inguinal ring.

It has been our experience that the best clinical approach to the diagnosis of scrotal enlargements is based upon the presence or absence of associated pain as determined in the history. The common causes of scrotal enlargement will be considered from this aspect.

PAINLESS ENLARGEMENTS (Figure 1)

1. *Hydrocele.* — This refers to an abnormal accumulation of fluid between the visceral and parietal layers of the tunica vaginalis testis. It is usually unilocular and in most cases, unilateral. The chemical nature of hydrocele fluid is that of a transudate containing proteins, its composition being similar to blood serum. It is always yellow or straw colored in appearance.

A. *Congenital Hydrocele.* This occurs in infants and children and is due to failure of the processus vaginalis of the peritoneum to obliterate during the descent of the testes. As a result there is a communication between the peritoneal cavity and the two layers of the tunica vaginalis. Most hydroceles present in the newborn will disappear spontaneously within a few weeks. A congenital hernia may be associated with the hydrocele if the communication with the peritoneal cavity is large enough to permit omentum of intestines to pass through. Some congenital hydroceles may persist for periods varying from several months to a few years and then disappear due to obliteration of the open processus vaginalis and absorption of the hydrocele fluid. Others do not subside spontaneously and require operative repair.

B. *Primary or Idiopathic Hydrocele.* This is the commonest type of hydrocele and is usually seen in the middle and older age groups. The etiology is not definitely known but most cases are probably secondary to a low-grade, subclinical, non-specific epididymitis. The onset is gradual and the enlargement is painless. It may be present for many years without causing any appreciable discomfort but a large hydrocele may produce a dragging sensation because of its weight. There is no history of preceding trauma or inflammation.

Physical examination reveals a smooth, globular or pear-shaped mass which is firm and nontender. The size is variable and with time may progress to that of a football. The testis often cannot be palpated if the amount of fluid is large. With smaller hydroceles, the testis may be felt at the lower posterior portion of the mass. The upper border of the hydrocele is limited at the inguinal ring and the spermatic cord can be felt just above the hydrocele. Some degree of fluctuation may be elicited depending upon the tension of the fluid within the hydrocele sac. As a rule, the hydrocele will transilluminate light unless the wall of the sac has become markedly fibrotic and thickened, as occurs in long-standing cases.

C. *Secondary or Acquired Hydrocele.* A hydrocele may be secondary to trauma or other disease processes within the scrotal cavity. The common lesions causing secondary hydrocele are tumor of the testis, acute non-specific epididymitis, chronic tuberculous epididymitis and mumps orchitis. The formation of the hydrocele may be acute or chronic depending upon the nature of the underlying lesion. The possibility of a coexisting testicular tumor should always be considered in the presence of a hydrocele in the young adult. In these patients, if the testis cannot be adequately palpated because of the hydrocele fluid, aspiration of the fluid or surgical removal of the hydrocele sac is indicated to

evaluate the condition of the testis. Direct trauma to the scrotum may be followed by acute hydrocele which usually becomes absorbed after a short period of time. Trauma to the blood vessels of the spermatic cord or interference with the circulation during hernia repair or varicocele operations may also be followed by a hydrocele.

The treatment of hydrocele consists of aspiration of the fluid with a needle and syringe or surgical removal of the hydrocele sac. Aspiration is a temporary measure since the fluid always reaccumulates within a short time. Aspiration followed by the injection of sclerosing solutions is not recommended because of the severe pain which may ensue or extensive sclerosis and damage to the testis. The only satisfactory cure of a hydrocele is surgery; either removal of the sac or eversion of the cut edges around the testis and spermatic cord.

2. *Spermatocele.*—A spermatocele is a retention cyst which develops from a blind-ending aberrant vas efferens in the head of the epididymis. It may also form from a normal vas efferens which becomes obstructed during late adult life. The secretions and spermatozoa produced in the testis gradually accumulate with a resultant dilatation of the involved vas efferens thus forming a spermatocele cyst. Almost all spermatoceles are extravaginal, i.e., outside the tunica vaginalis testis.

Spermatoceles actually occur more commonly than hydroceles but many are not discovered because of their small size. They are usually overlooked by the patient until they become as large or larger than the testis. As a rule they are asymptomatic but the larger cysts may cause some degree of discomfort. Spermatoceles are commonly seen in the middle and older age groups but small ones may be found in young adults upon a careful examination of the scrotum.

The characteristic finding is that of a cystic mass located just above the testis and seemingly attached to the upper pole of the testis. It may be misdiagnosed as a supernumerary testis. Some degree of fluctuation is always present and the mass transilluminates light as does a hydrocele. The fluid of a spermatocele is never yellow or amber but is always clear or slightly turbid. This is due to the presence of spermatozoa which may be seen on microscopic examination.

The only definitive treatment of spermatocele is surgical excision. The entire cyst must be removed in order to prevent a recurrence. Aspiration of the contents is invariably followed by reaccumulation of the fluid.

3. *Hematocele.* This is an accumulation of blood between the layers of the tunica vaginalis testis resulting from direct trauma to the scrotum. It may also form following injury to a pre-existing hydrocele with resultant bleeding into the hydrocele sac. The appearance and consistency resembles a hydrocele but it will not transilluminate light. The overlying skin is often tense and shiny. The hematocele may be painful initially due to the sudden distention of the tunica vaginalis but the pain rapidly subsides. The blood may gradually become absorbed or it may persist with partial organization. With persistence of the mass, operative removal of the entire hematocele sac may be necessary to effect a cure. This condition differs from a hematoma of the scrotum which is a subcutaneous collection of blood following trauma and is limited to the scrotal wall.

4. *Varicocele.* This consists of a mass of varicose veins of the pampiniform plexus of the spermatic cord. It occurs practically always on the left side presumably because the left internal spermatic vein drains at right angles into the left renal vein. The right spermatic vein joins the vena cava at only a slight angle with less back pressure.

The presence of a mass of worm-like configuration along the left spermatic cord above the testis is diagnostic of varicocele. The mass is apparent when the patient stands and largely disappears with the patient in the recumbent position. Most varicoceles are painless but some degree of discomfort may be present. Some type of scrotal support is sufficient to relieve the symptoms of these patients. It may be difficult to evaluate the symptomatology because of the functional factor which is often present. Operative intervention should be considered only as a last resort since symptoms may persist even after surgical removal of the varicocele.

5. *Hernia.* Scrotal hernias are especially common among older men. They may become very large but most are painless and cause no real difficulty. The hernial mass is usually firm and somewhat irregular depending upon the amount of omentum within the hernial sac. The mass will feel soft and fluctuant if bowel is present

and there is usually a definite impulse palpable on coughing. A scrotal hernia lies above or in front of the testis and in front of the spermatic cord.

If the mass is reducible the diagnosis is obvious. However, an incarcerated hernia may be confused with a hydrocele or a spermatocele. In most cases a scrotal hernia will not transilluminate light. Bowel sounds may be heard on palpation of the mass or by auscultation through a stethoscope. The differential diagnosis from hydrocele is important because of the danger of puncturing bowel if aspiration is performed.

6. *Tumor of the Testis.* Although this condition is relatively uncommon, it should always be considered in the diagnosis of scrotal enlargement in young adults because of its seriousness. Benign neoplasms of the testis are so rare that all testicular tumors must be considered malignant until proven otherwise.

The classification of tumors of the testis is based upon the predominant histological pattern: seminoma, embryonal carcinoma, teratoma, or teratocarcinoma (Friedman and Moore). Metastases occur via the lymphatics of the spermatic cord to the periaortic and retroperitoneal lymph nodes or by the blood stream to the lungs. Extensive involvement of the pelvic lymph nodes may lead to obstruction of the vena cava with peripheral edema or pressure on the nerve roots with intractable pain.

The patient usually seeks medical attention because of the discovery of a painless mass in the scrotum. Careful examination of the scrotal contents reveals a stony hard, movable, irregular mass limited to the testis. The epididymis and spermatic cord are normal to palpation and are not involved in the mass. However, it may be extremely difficult to differentiate a chronically thickened tail of the epididymis from an early testicular tumor of the lower pole. A secondary hydrocele may be present and obscure the exact localization of the mass. If testicular tumor is at all suspected, the hydrocele should be aspirated or surgically explored in order to properly examine the testis. Determination of the gonadotropic hormone of the anterior pituitary in the urine (Ascheim-Zondek test) is of limited value. This test is positive only in a small percentage of cases; usually in the later stages of the more malignant tumors (chorioepitheliomas) so that a negative result offers no aid in diagnosis.

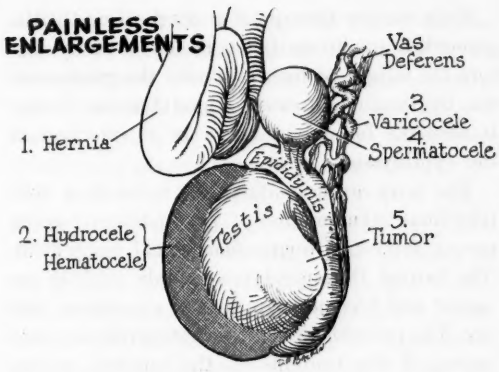


**Figure 2.—Diagramatic representation of painful enlargements of the scrotum.**

In some instances, the presenting complaints may be due to the metastases rather than the primary tumor. Vague abdominal pain, edema of the lower extremities, or enlargement of the abdomen may be the result of extensive involvement of the pelvic lymph nodes. Persistent cough may be the sole complaint due to pulmonary metastases. All cases of suspected testicular tumor should have a routine chest x-ray.

Treatment is surgical and consists of complete removal of the testis, epididymis and spermatic cord up to the inguinal ring. Post-operative irradiation to the abdomen and chest for possible metastases is recommended.

PAINFUL ENLARGEMENTS (Figure 2)

1. *Acute Non-Specific Epididymitis.* — This is a rather common condition and occurs among adult males of all age groups. In most instances the infection in the epididymis is secondary to infection in the seminal vesicles, prostate, or posterior urethra. The infecting organisms reach the epididymis as a result of retrograde extension along the vas deferens from the primary source. Any urethral manipulation such as passing a catheter, sound, or cystoscope may be a predisposing factor in the development of epididymitis. This condition may follow any type of surgical procedure on the prostate and should always be watched for during the postoperative period. Occasionally, epididymitis may be the result of hematogenous spread from a source elsewhere in the body such as an upper respiratory infection. The offending organisms usually are the common pathogenic bacteria such as staphlococcus, streptococcus, or any of the gram negative coli group.

With modern therapy of gonorrheal urethritis, gonorrheal epididymitis has become a rarity. Before the advent of the antibiotics the gonococcus was the commonest cause of epididymitis. Today it accounts for only a rare case of infection in the epididymis.

The term erotic epididymitis refers to a non-infectious inflammation of the epididymis which occurs following ungratified sexual excitement. The tail of the epididymis is only slightly enlarged and becomes painful and exquisitely tender. The probable cause is the retrograde regurgitation of the contents of the seminal vesicles through the vas to the tail of the epididymis because of failure of normal ejaculation. This condition is transient and usually subsides within twenty-four to forty-eight hours.

The history of acute non-specific epididymitis is usually typical. There is an acute onset of painful swelling in the scrotum. The pain may become very severe and is associated with malaise and fever. There may be a previous history of symptoms suggestive of prostatitis, seminal vesiculitis, or posterior urethritis. One should always question the patient specifically regarding any urethral instrumentation performed prior to the onset of the swelling.

Examination reveals an enlargement of one side of the scrotum which is hard, irregular and exquisitely tender. The overlying skin is warm, shiny and reddened. The mass varies in size but in most cases is as large as a baseball or larger. If the inflammatory reaction is very extensive it may be impossible to palpate any specific structures in the scrotum. As a rule, however, the hard irregular mass can be felt in the region of the tail of the epididymis. The testis may be involved secondarily but is unusually unaffected. The spermatic cord often becomes indurated or edematous.

Torsion of the spermatic cord is a relatively rare condition but must be kept in mind inasmuch as it may simulate an acute epididymitis. Following any sudden movement or straining, the spermatic cord may twist so that the blood supply to the testis and epididymis is obstructed. This results in an acute painful swelling with the rapid development of gangrene of these structures. The diagnosis is usually missed but can be made with a careful history and the palpation of an indurated mass involving the entire contents of the scrotum.

The treatment of acute epididymitis consists of bed rest, antibiotics, scrotal support, heat and fluids. The pain and fever respond rather quickly but the edema and induration may persist for several weeks. As a rule, the epididymis returns to normal without complications. In the elderly, debilitated patient, suppuration may occur with the formation of an abscess. In these cases, incision and drainage or epididymo-orchiectomy may be indicated.

2. *Acute Orchitis.* — Inflammation of the testis is uncommon and occurs following trauma or secondary to mumps. A history of a direct blow to the scrotum followed by a painfull swelling within a few hours suggests a traumatic orchitis. The testis becomes markedly painful and tender. There may be a secondary acute hydrocele which follows the initial inflammation. The orchitis and hydrocele usually subside with rest, elevation and heat without resultant sequellae.

Mumps orchitis is associated with or follows the typical parotitis. Involvement of the testis is more likely to occur in teen-agers or young adults. The testis becomes exquisitely painful and tender and there is associated fever and prostration. The swelling may persisit for several weeks and in a large percentage of cases the testis becomes atrophied and sterile. Recent therapy aimed at rapid reduction of the orchitis to prevent atrophy has been reported with excellent results. The use of oral stilbesterol or incision of the tunica vaginalis and tunica albuginea to relieve the edema have been described.

It is to be emphasized that the testis is actually rarely responsible for enlargements within the scrotum. Approximately 95% of scrotal enlargements are due to pathology outside the testis proper.

3. *Chronic Non-Specific Epididymitis.*—This causes a slightly painful enlargement of the epididymis with an insidious onset, developing and persisting over a period of months or even years. It may or may not follow an attack of acute epididymitis. Some discomfort in the groin or perineum may be present together with occasional mild urinary symptoms. This indicates the presence of an accompanying low-grade prostatitis or seminal vesiculitis which is usually the source of the epididymitis.

The tail of the epididymis is slightly enlarged, firm and irregular. Involvement of the head

of the epididymis usually is associated with tuberculous infection. The vas deferens is normal to palpation. Massaged secretion from the prostate and seminal vesicles may show pus cells indicating a low-grade chronic infection. In most cases the symptoms of chronic epididymitis may be relieved by treating the associated prostatovesiculitis. The slight enlargement of the epididymis usually requires no further therapy unless the pain persists. For these occasional patients an epididymectomy is indicated.

4. *Chronic Tuberculous Epididymitis.* — This condition has become less common in recent years with the decreased incidence of genitourinary tuberculosis. However, it must be ruled out in every patient with a history of a persistent mass in the scrotum associated with some degree of pain or discomfort.

As a rule, tuberculous involvement of the epididymis is secondary to a primary focus elsewhere in the body, such as the lungs or kidneys. The spread is hematogenous in most cases and the epididymis is usually the first structure of the genital tract that becomes involved. The primary focus may be completely healed or it may be subclinical when the enlargement of the epididymis becomes apparent. However, inasmuch as definite activity of the primary lesion is demonstrable in approximately 50% of cases, a careful search for the primary lesion should always be made. This should include a chest x-ray, sputum examination, smear, culture, and guinea pig innoculation of the urine for tubercle bacilli, and an intravenous pyelogram.

Tuberculous involvement of the vas deferens, prostate, and seminal vesicles may occur by direct extension from the epididymis. These structures, therefore, should be carefully examined in the presence of tuberculous epididymitis. In some instances tuberculosis of the genital tract is secondary to a primary lesion in the urinary tract. The infection may spread from the kidneys to the bladder and posterior urethra by urine containing tubercle bacilli. Further extension occurs from the posterior urethra involving the seminal vesicles, prostate and epididymis.

Tuberculous epididymitis initially involves either the head or tail of the epididymis. Caseation and multiple abscess formation occur at an early stage with gradual spread to the entire epididymis. The adjacent tissues such as the tunica vaginalis and scrotal skin become thickened and markedly adherent to the epididymis. The testis apparently has an immunity to the tubercle bacilli since it rarely becomes a part of the tuberculous process. With the formation of abscess cavities in the epididymis, one or more discharging sinuses form in the serotal skin.

A history of *chronicity* in connection with a slightly painful scrotal mass is highly suggestive of tuberculous epididymitis. The presence of one or more draining sinuses in the scrotal skin is almost pathognomonic of this condition. In the early stages the enlargement of the epididymis may involve either the head or tail. Later the entire epididymis is enlarged but it rarely exceeds the size of a lemon. The mass is firm and irregular and is not part of the testis. The presence of a secondary hydrocele may interfere somewhat with a proper examination of the mass. Palpation of the scrotal vas reveals a diffuse thickening or a series of nodules along its course, the so-called "beading" of the vas which is characteristic of tuberculosis. Rectal examination of the prostate and seminal vesicles may demonstrate areas of nodularity or induration indicative of tuberculous infection.

In some cases of chronic epididymitis the differential diagnosis between nonspecific and tuberculous infection may be difficult and is made only on surgical exploration. The finding of localized areas of caseation in the epididymis will determine the diagnosis, but occasionally a microscopic examination of the excised epididymis is necessary to establish the true nature of the lesion.

The treatment of tuberculous epididymitis still remains surgical. Complete extirpation of the epididymis and vas deferens should be performed unless there is widespread tuberculosis throughout the body. It may be necessary to remove the testis in some cases because of marked adhesions to the epididymis, but, as a rule, the testis can be preserved. The use of streptomycin preoperatively is recommended because of its action in walling off abscess cavities and thus minimizing the spread of tubercle bacilli during surgery. Streptomycin in itself has not cured tuberculous epididymitis.

## CONCLUSIONS

The diagnosis of scrotal enlargements should present no particular difficulty in most cases if the common pathological lesions occurring within

the scroum are kept in mind. A careful history paying special attention to the presence or absence of associated pain and the type of onset of the enlargement is of great value. Examination of the scrotum should include careful palpation of each specific strucure in order to determine the exact nature and site of the lesion. Clinical experience has shown that the testes are the least common site of scrotal enlargements so that it is important to examine carefully *all* the structures within the scrotum in order to arrive at a correct diagnosis.

# Arthritis—How to Diagnose It More Accurately

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Though interest in rheumatic diseases has increased markedly it is unfortunate that many doctors lack confidence in diagnosing these diseases accurately. In particular confusion arises when arthritis affects the end and middle finger joints. Here the diagnosis is frequently made of "mixed arthritis", mistakenly diagnosing osteoarthritis in the terminal and rheumatoid arthritis in the middle joints. Again there is a tendency to overlook gout by depending too much on the so-called bony stigmata of "punched-out areas." Unfortunately we see similar subchondral radiolucent areas in rheumatoid arthritis and, to a lesser degree, in osteoarthritis.

If a few characteristic criteria common to osteoarthritis, rheumatoid arthritis and gout are borne in mind, the confusion should be greatly minimized.

Simply stated, the diagnosis of osteoarthritis is usually made of an age of 40 years or older; chronicity; predilection for large weight-bearing joints as well as terminal phalangeal Heberden's nodes; physical brachymorphism (short, broad, thick and heavy) in the majority; symmetrical distribution; little soft tissue change; absence of tissue atrophy and subcutaneous nodules; associated obesity and overweight; influence of chronic strain, trauma and wear-and-tear; normal sedimentation rate, blood calcium and phosphorus; normal A/G ratio; normal bone calcification with osteoporosis only in the aged; spurring, lipping, osteophytosis; joint narrowing without ankylosis; crepitation with motion; unfavorable influence of barometric variations; radicular signs when intervertebral foramina are encroached upon by bony spicules; unilateral or bilateral degenerative hip disease without fusion; segmental spinal arthritis and the knowledge that "mixed arthritis" is actually osteoarthritis of two separate sets of joints.

Rheumatoid arthritis is occasionally acute, though usually chronic; a family history is noted; age is 20-35 but earlier in Still's disease; 3 females to 1 male except in Marie-Strumpell's disease when 95% are males; two thirds are dolichomorphic; small joints; symmetrical swellings and pathognomonic fusiform or spindle-shaped swellings of proximal interphalangeal joints; subcutaneous nodules and ganglia are noted, along with soft tissue atrophy, weight loss and anemia; the skin is cool, moist and velvety though warm over inflamed areas; ankylosis occurs in one third along with deformity and ulnar deviation of the fingers; sedimentation rate is rapid in active stages:

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blood calcium, phosphorus and uric acid are normal; the A/G ratio tends to reverse with a decrease in albumen and an increase in globulin; x-rays reveal generalized osteoporosis or demineralization, with bones having a "ground glass" appearance; joint space is narrowed and there is joint effusion; a juvenile form (Still's disease) is seen rarely; a form occurring with psoriasis is seen in 2.5%; a characteristic spinal form — Marie-Strumpell's disease — characteristically begins in males in the low back, eventually obliterates the sacro-iliac joints, is accompanied by calcification of ligaments, poker spine, "seal" neck, abnormal gait, and loss of lumbar lordosis. This is the only type of arthritis which responds to x-ray treatment. All male members of a family in which this diagnosis is made should have pelvic x-rays made to exclude latent Marie-Strumpell's disease.

A resume of gout reveals that it occurs 98% of the time in males; is monoarticular and acute during the first attack in 95%; that it involves the great toe early in 70% and eventually in 90%; it involves weight-bearing joints especially; tophi occur late, after 10 years, in 50% — the needle crystals of monosodium urate obtained from the tophi are diagnostic; blood uric acid is 6 mg.% or higher in 75% of untreated cases; sedimentation rate is normal between attacks; attacks are short, usually lasting 3-11 days and then followed by long periods of normalcy (8-18 months in early cases) though frequent attacks may occur late in chronic gouty arthritis; suspect gout in males over 40 who have an early morning attack of joint pain, especially if in the great toe; in those having tendo Achillis tendinitis, patellar or olecranon bursitis, periarticular ulceration or fistulae; after injections of liver extract, $B_1$, insulin, gynergen or mercurials, or after excessive food or alcohol; there is a family history in 50-60%; the attack is usually preceded by no trauma or very slight trauma and, finally, adequate colchicine dosage usually controls the attack.

"Mixed arthritis" actually does not occur. It is usually diagnosed when classical Heberden's nodes are seen together with fusiform or spindle-shaped swellings of the proximal interphalangeal joints of the hands. The sedimentation rate is normal. X-rays show changes which are similar in both sets of joints. There is no evidence elsewhere of rheumatoid arthritis. The age is usually, but not always, past 60. The correct diagnosis is, of course, chronic osteoarthritis and is described by some as "Heberden's nodes with a second crop in the proximal interphalangeal joints."

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## ULCERATIVE COLITIS

The patient with active ulcerative colitis is a physically sick person. This in itself is of great importance in determining the psychologic approach. It means that apart from the more or less specific psychologic aspects of the disease, there are nonspecific psychologic problems related to the physical disturbance itself. Like all physically ill persons, the patient is, to varying degrees, physically disabled, deprived of various means of dealing actively with his environment and his own interpersonal problems, and much of his attention is focused on the physical symptoms. His psychologic resources are limited by the physical process, and his reserves are depleted. He is relatively helpless and correspondingly dependent on others. This has advantage as well as disadvantage for the ulcerative colitis patient. On the one hand, it helps to remove him from the immediate life situation in which the attack developed but, on the other hand, it may lead to the revival of other conflicts of early life when the patient was also so dependent and helpless. For example, problems about soiling and cleanliness may be intensified. Further, while the actuality of the physical manifestations makes such a dependent situation more easily acceptable to the patient, at the same time the physical illness reduces greatly the patient's means of coping with stresses and frustrations. *George L. Engel, M.D. Psychologic Aspects Of The Management Of Patients With Ulcerative Colitis. New York J. of Med., Sept. 15, 1952.*

# Anoxia in the Newborn Infant

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Anoxia in the newborn infant concerns itself with three phases:

1. Prenatal
2. During delivery.
3. After delivery.

The lack of oxygen may be an isolated episode, it may be intermittant or continuous and of a greater or less severity and duration. Because of this wide variation, it is the primary cause of 60% of deaths among full term and premature infants and of at least as high a proportion of neonatal morbidity. The condition is a pathological force, that affects every organ and tissue of the body to a variable degree.

Anoxia is probably the most important single cause of disease and death in the newborn infant. It is recognized more frequently as being responsible for many neurological changes manifested in older groups.

How does anoxia produce pathological changes in the infant?

Anoxia produces an increased hydrogen ion concentration through an accumulation of carbonic and lactic acid. This acidosis in turn may result in the progressive states of excitation, discharge of energy and finally, exhaustion of the nerve tissue, namely paralysis. The acidosis may produce loss of tone and dilitation of heart muscle, as well as loss plasma and hemorrhage in blood vessels. The progressive pathological changes that may be caused by anoxia may be summarized as: congestion, oedema, hemorrhage and death of the tissues.

The etiology of anoxia may be summarized in the following table:

Prenatal:
- Diseases of the placenta.
- Premature separation of the placenta.

During Delivery:
- Diminished oxygen supply to the maternal side of the placenta.
- Metabolic disturbances in the mother: hyperthyroidism, diabetis
- Severe infection in the mother.
- Interferences with placenta and cord circulation.
- Medication to the mother passing through the placenta.
- Pulmonary disease: tuberculosis, bronchiectasis, congestive heart failure.

Infant:
- Prolapsed cord.
- Rupture of cord.
- Compression of cord.

The question of anesthesia may be a large factor in the production of anoxia. Whatever analgesic or anesthesia is used, it should be chosen and administered with caution, as the infant will pay the price for the comfort afforded the mother.

All operative procedures increase the danger to the infant. Version, extraction, high and midforceps, caesarian sections all show high rates of asphyxiated infants.

In the neonatal period other factors may cause anoxia:

Failure of the Respiratory Center.
- Brain hemorrhage
- Depression from anesthetic to the mother.

Mechanical obstruction of the airways.
- Excessive secretions and mucous plugs.

Pathological conditions in the lungs from intrauterine asphyxia.
- Hyalinization of the lungs.

Congenital malformations: of
- Lungs, Trachea, Diaphragm, Heart and Blood vessels.

What are the physical signs of Asphyxia in the Newborn? A classification according to Flagg is very complete:

Mild Asphyxia.
- No breathing for 30 seconds.
- Muscle tone good.
- Gag reflexex present.

From the Stritch School of Medicine, Loyola University, Chicago.

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Heart rate normal.
Amniotic fluid and mucous plugs may obstruct the airways.
Rule out anesthetized infants.

Moderate Asphyxia.
Muscle tone poor to absent.
No resistance to opening mouth.
Reflex irritation of glottis absent.
Cardiac impulses poor, rapid then very slow.

Severe Asphyxia.
No response to attempts at resuscitation
Color livid
Absent respiratory movements.
Cardiac impulse poor.

What to do for the infant who is asphyxiated at birth.

The mouth and pharynx should be cleared of all mucous and secretions with suction, using care and gentleness. Too much and vigirous use of the suction apparatus causes trauma to the soft tissues.

Some of the fluid may be removed by postural drainage and the milking of the trachea.

Keep baby warm. Best place is in an incubator with oxygen.

The use of such drugs such as alphalobeline are questionable. The margin of safety with this drug is very small and toxic results cause convulsions.

Forcible administration of oxygen may do considerable damage to the lungs. Respirators may cause the same damage.

No food or fluids by mouth or subcutaneously for two or three days, this will lessen the oedema of the brain by dehydration.

Positive compression chambers have been used in some nurseries with success.

In summary: Anoxia is a serious complication for the newborn. Prophylacticaly good obstetric management is needed during the entire pregnancy. For the care of the infant at birth: clear the airways, administer oxygen, provide heat, with-hold fluids for a few days to lessen oedema to the brain, constant observation, changes take place very rapidly.

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# An Analgesic Agent for Cystoscopy

**Willard C. Meyer, Major, M.C., U.S.A.R.* and Edwin Byer, Captain, M.C., U.S.A.R., U. S. Army Hospital, Camp Carson, Colorado**

Analgesia and anesthesia in the cystoscopic procedure is almost as variable as urologists are numerous. Such a condition indicates the ideal agent or method has not yet been arrived at. In considering the cystoscopic procedure as it is usually performed by the urologist with retrograde pyelography, the approach to pain relief should in no way interfere with the aims of the procedure, namely, visualization of the bladder and procurement of diagnostic x-rays of the upper urinary tract; and the approach to pain relief should not be a more formidable procedure than the operation itself. It is desired in this presentation to suggest an analgesic agent and a route which will meet the above criteria.

Cystoscopy has proven itself to be an invaluable diagnostic procedure, as have the retrograde pyelograms which are made following such an examination. To make such an examination readily acceptable to the patient, it should be made as painless and comfortable as is possible and provide a degree of amnesia. The analgesic or anesthetic agent, however, must not be such that the patient cannot cooperate to the fullest extent in the production of the x-ray films necessary in the upper urinary tract visualization. In a review of the various agents used for cystoscopic procedures, a classification can best be made by dividing the agents into the general and the topical analgesic or anesthetic agents. General anesthesia, except in unusual cases, is not practical because the patient is unable to cooperate by breath holding in expiration during the

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period of x-ray exposure. General anesthesia is too extensive an approach, with possible post-anesthetic complications to be considered. Frequent cystoscopic manipulations are not readily accepted by the patient with this method.

Spinal anesthesia is used in many instances for cystoscopy, but here it is felt the anesthetic agent is far too profound for the procedure. Again the dangers inherent in the anesthetic agent far exceed the magnitude of the procedure involved. Such an agent often brings objections from the patient for purely psychic reasons, but such reasons must be accepted by the urologist.

The various intravenous barbiturates are also used rather extensively, with or without supplementation with gaseous agents, but in such cases the patient is either completely asleep or so narcotized that he is unable to respond to satisfactory breath control during x-ray exposure. In short cases where no x-rays are being taken such an approach may prove satisfactory, but the patient is again seen to have the undesirable depression of barbiturates.

The use of topical anesthetic agents in the male is also widely used, but it is felt such an agent does not give complete analgesia. The agent is effective in anesthetizing the urethral mucosa which is not traumatized or affected by the passage of a cystoscope or other rigid instrument. The pain of the instrumentation by rigid instruments is not in the urethral mucosa of a patient with normal urethral calibre, but is caused by the membranous urethra being put on a stretch by the instrument as it straightens the urethra from its normal curve to a relatively straight line to accommodate the straight cystoscope. This is illustrated by the passage of a soft rubber catheter which readily accommodates itself to the natural contour of the urethra, causing no stretch of the membranous urethra, and causing little or no pain to the patient. Passage of a rigid instrument of a similar calibre which is straight, thus causing a stretch of the membranous urethra, does cause a definite pain when only a topical anesthetic is used.

The ideal analgesia agent, then, is one which will relieve the patient of pain as the instrument is passed and the bladder inspected, and yet be sufficiently short acting as to allow the patient to be awake and cooperative enough during x-ray exposure. The agent should not be more formidable than the cystoscopic procedure itself, should have little or no side effect, and should be non-toxic to the patient. The agent should also be one which is readily accepted by the patient and can be used repeatedly for the same case when several cystoscopic procedures are necessary. The analgesic agent meeting the above requirements has been found by us to be intravenous demerol, preceded by premedication of morphine 10 mgm., scopolamine 0.6 mgm. and seconal 90 mgm. In a series of 40 cases of cystoscopy in the male (chart 1), this analgesic combination was used with uniformly excellent results for cystoscopy and retrograde pyelography. Of the forty cases, only two required supplementary pentothal. Three cases required supplementary nitrous oxide, self-administered. One case in which pentothal was used proved to be uncooperative. Other minor deviations from the ideal are pointed out in chart 1. The patients were most cooperative during the period of x-ray exposure and yet complained of little pain or discomfort during the cystoscopic manipulation. The demerol is given intravenously in increments of 25 mgm. slowly over a three minute period. In the older age group, the dosage level is reduced according to the needs of the patient and repeated, if necessary. The one side effect of significance is that of respiratory depression, and, by slow administration and appropriate dosage level, such respiratory embarrassment can be avoided. However, if respiratory depression is noted, oxygen by mask, used with the anesthesia machine, provides adequate oxygenation until the drug is sufficiently metabolized and the patient can resume normal respiratory activity. In our experience, a single I.V. dose is metabolized within twenty minutes. The average total dose was 50 mgm. Less than 5% of the cases in this series showed any evidence of side effects of the drug. Such side effects were minimal and were manifested by nausea, a flushing of the skin and a wheal formation over the course of the injected vein for a short distance.

The agent is widely used in other fields as an analgesic agent and is used in obstetrical cases as well as for analgesia in various conditions producing severe pain. The usual route is intramuscular injection; however, for rapid effect and short duration, the intravenous approach is used.

The specific use of intravenous demerol with ordinary premedication for cystoscopic procedure has not been suggested in the urological litera-

Chart 1

| | Premedication | MG Demerol IV | Pentothal | $N_2O$ | Remarks |
|---|---|---|---|---|---|
| 1. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 100 | 0 | 2 breaths, self-administered as scope was passed. | Nausea. Satisfactory analygesia |
| 2. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 25 | 0 | 0 | Satisfactory analgesia |
| 3. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 | 0 | Self-administered, few breaths | Satisfactory analgesia |
| 4. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 | 0 | 0 | Satisfactory analgesia |
| 5. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 100 | 100 mg | 0 | Pt. too sleepy to cooperate with x-ray taking. |
| 6. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 75 | 200 mg | 0 | Satisfactory analgesia |
| 7. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/150 | 50 | 0 | 0 | Satisfactory analgesia |
| 8. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 | 0 | 0 | Satisfactory analgesia |
| 9. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/100 | 50 | 0 | Few breaths, self-administered | Not adequate analgesia |
| 10. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/150 | 75 mg | 100 mg | 0 | Pain without pentothal, too much anesthesia after |
| 11. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Some mild complaints |
| 12. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | No complaint |
| 13. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Some mild complaint |
| 14. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | No complaint |
| 15. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 16. | Sec. gr. 1½<br>M.S. gr. ¼<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 17. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 18. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |

*(Continued)*

| | Premedication | MG Demerol IV | Pentothal | $N_2O$ | Remarks |
|---|---|---|---|---|---|
| 19. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 20. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 0 | 0 | 0 | Satisfactory analgesia |
| 21. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 22. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Fairly good |
| 23. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 24. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 25. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 26. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 27. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 28. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 29. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 30. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 31. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 32. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 33. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 34. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 35. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 36. | Sec. gr. 1½<br>M.S. gr. 1/6<br>Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |

(*Continued*)

| Premedication | MG Demerol IV | Pentothal | $N_2O$ | Remarks |
|---|---|---|---|---|
| 37. Sec. gr. 1½ M.S. gr. 1/6 Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 38. Sec. gr. 1½ M.S. gr. 1/6 Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 39. Sec. gr. 1½ M.S. gr. 1/6 Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |
| 40. Sec. gr. 1½ M.S. gr. 1/6 Scop. gr. 1/150 | 50 mg | 0 | 0 | Satisfactory analgesia |

ture and warrants trial by the profession. The drug has been used at this hospital exclusively in military personnel. Female cystoscopy does not require any analgesic agent other than a mild post-operative sedation. The age group in which it has been employed here is from 18-45 years. In the military, it is most desirable to have a post-operative convalescence of short duration. The use of demerol enables the patient to be co-operative upon his return from the cystoscopic room, minimizing the nursing care required. The patient can be ambulatory shortly after such a procedure and can be returned to full duty the following day. Such advantages are also applicable to the civilian situation where nursing care is at a premium and short hospital stay desirable.

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Addenum. Since the preparation of the initial report approximately two hundred additional cases have had satisfactory analgesia for cystoscopic procedures.

## I.Q. AND THE SCIENTIST

School teaching attracts the least bright students; the natural sciences attract the brightest. These are some of the conclusions based on studies of the marks achieved in the Army General Classification. Test by groups of college graduates, graduate students, and Ph.D.'s specializing in almost all fields of learning. Of the bottom one-fifth of all graduate students, in terms of AGCT marks, 46 per cent are in education. Of the top one-fifth, 18 per cent are in the natural sciences. The average person who earns a bachelor's degree earns a score of 126 on the AGCT. The average person in the general population has a score of 100. Only about 10 per cent of the general population could achieve a score above 126. The average graduate student scores around 129, and the average Ph.D. in the sciences scores around 138. Only about two per cent of the general population can score higher than that. The lower 25 per cent of all students who earn a bachelor's degree would not pass the Selective Service college deferment test, the study's figures show. To be deferred, a student has to achieve a mark equal to 120 on the AGCT. *Teaching Attracts Low I.Q. Science News Letter, Oct. 11, 1952.*

# - Diarrhea —

## Physiological Considerations and Clinical Problems

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**SEMINAR**
of the
**DEPARTMENT OF MEDICINE**
and
**COOPERATING DEPARTMENTS**
of the
**UNIVERSITY OF ILLINOIS**
Edited by:
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Under the pressure of treating patients ill with diarrhea, the average physician tends to give priority to aspects of therapy. It seems pertinent to point out, however, that the reason a patient seeks medical counsel for any digestive tract disorder is because of symptoms due to an alteration in gastrointestinal tract motility. This disturbance of motility occurs regardless of the etiology — whether inflammatory, mechanical or neoplastic. Selection of drugs for the alleviation of symptoms should be limited to agents which will not obsure the diagnosis. Atropine will usually relieve the symptoms due to hypermotility and is least apt to confuse the ultimate diagnosis. Even if vigorous vomiting prevents the use of other oral medication, atropine may be given sublingually and be properly absorbed. Dosages of 0.6 mg. (grs. 1/100) of atropine given two to four times daily may be continued three to four days if no contraindication exists. If vomiting and diarrhea persist, atropine unlike Kaolin, bismuth, or pectin preparations will not interfere with fecal studies for smear and culture for micro-organisms and parasites.

Of the various types of diarrhea to be encountered, the most common form is acute, non-specific gastroenteritis. This appears to be transmissible as are upper respiratory and other viral infections, and usually occurs in multiple epidemics in a given community each year. Bacillary dysenteries are encountered infrequently in this territory. Amebic dysentery, on the other hand, is sufficiently common to warrant serious diagnostic and therapeutic consideration. In our own studies at Northwestern University Medical School, based on data on patients referred to the laboratory for stool cultures because of the presence of diarrhea or other gastrointestinal tract symptoms, 7.29 per cent showed infestation with entamoeba histolytica. The incidence in the population at large, of course, would be significantly lower.

It should be emphasized that the careful diagnosis of amebiasis is difficult. The many reported studies of incidence of amebiasis in various parts of the country are difficult to evaluate because of the lack of uniform criteria for diagnosis. Some laboratories, for instance, will make a diagnosis based upon the finding of trophozoites in the stool. We do not believe that a positive diagnosis can be made based upon the finding of trophozoites unless encystment can be produced on culture. It is often impossible to distinguish between the trophozoites of entamoeba coli and entamoeba histolytica whereas the cysts may be readily identified. The production of encystment by proper cultivation technique is not too technically difficult with reasonably careful bacteriologic procedures.

In recent years we have been interested in attempts to correlate the diagnosis of amebic dysentery on fecal examination, with proctoscopic findings and the complement fixation test. Positive proctoscopic findings, i.e. mucous membrane ulceration, occur in less than eight per cent of patients with a positive fecal diag-

nosis. In a survey of 500 patients with amoebic dysentery, we found that complement fixation tests and positive stool findings could be not be correlated in more than four per cent of the individuals; on the other hand, complement fixation tests gave false positive results in 25% to 30% of the cases. It has been suggested that this variation is due to a variation in the antigen used in the tests; other authors feel that only those cases of amoebic dysentery which show tissue invasion will produce positive complement fixation. So far, however, either of these suggestions needs further investigation before it can be accepted.

The treatment of amebic dysentery raises some interesting questions. First, one must realize that any procedure which changes the growth environment in the bowel, even a high protein diet, will in turn affect the clinical picture of amebiasis. The choice of an amebacidal drug depends to a certain extent on the question of whether the infection is restricted to the lumen of the intestine or whether there has been extra-lumenal invasion. This question cannot be dogmatically answered. If cysts are present in the feces, then trophozoites must be present. If trophozoites are present it is hard to conceive of their presence as living free within the bowel lumen without invasion of the mucous membrane. Several critical protozoologists, however, believe that trophozoites may exist without invasion of the mucous membrane. Because of the factor of tissue invasion, as a rule, we initiate therapy with an absorbable amebacidal agent such as chloroquine, followed by compounds which are not absorbed and act within the bowel lumen such as the iodoquinoline preparations and the arsenicals. Antibiotics in our experience, as well as others, have only a limited effect on entamoeba histolytica, and transient remissions are reported in patients so treated, probably upon the basis of alteration in the bacterial flora of the gastrointestinal tract. In view of the high frequency of gastrointestinal tract symptoms produced in sensitive patients with the antibiotics, the use of such diarrhea producing agents to treat a diarrheal disease seems open to serious question.

If a patient of cancer age develops diarrhea, the finding of entamoeba histolytica is no conclusive proof for the etiology of the complaint. Complete diagnosis should rule out the presence of an underlying malignancy in the gastrointestinal tract. On the other hand, overzealous attempts to obtain maximum information at one time will often obscure the diagnosis. Stool cultures must be completed before any other studies are initiated; — purging, treatment with adsorbing drugs, barium studies, enemas, will make it difficult, if not impossible, to isolate etiologic agents. In an orderly sequence of study, a maximum of three warm stool examinations is followed by proctoscopy. The appearance of the mucosa can then be recorded before it is altered by the diagnostic or therapeutic management. Roentgenograms of the digestive tract follow these procedures.

Two new concepts have stimulated interest in the study of diarrhea during the recent past. Kirsner, Grey and others, attempted to correlate the degree of diarrhea with a lysozyme titer in ulcerative colitis. As the diarrhea improves, the lysozyme concentration in the stools decreases. A similar fall in lysozyme titer can be obtained by administration of Cortisone and ACTH. Finally, following prolonged diarrhea, potassium depletion my explain some of the post-diarrheal complications. The determination of the serum potassium actually does not permit any conclusion of the electrolyte reserve in the tissues of the patient. In other words, much work has to be done in this particular field before the laboratory findings will contribute to the understanding of the clinical course of the desease.

## DISCUSSION

*Dr. Max Samter,* Associate Professor of Medicine: Dr. Dolkart has given us a stimulating summary of the general and specific problems of diarrhea. I am intrigued by his statement that the hypermotility of the intestines must be controlled regardless of the etiology of the condition. In a way, this is contrary to what I have been taught in medical school. In fact, I have been brought up with the idea that the hypermotility in diarrhea is part of a mechanism of elimination; that, in other words, it might even be encouraged to remove the assembled toxic agents which set it in motion.

*Dr. Fred C. Endres,* Peoria, Ill.: As long as we discuss general principles, it might be important to point out that one group of diarrheas which assumes increasing importance, at least in my practice, has not been mentioned by Dr.

Dolkart. I am thinking of diarrheas of allergic origin which require, of course, a rather specialized approach.

*Dr. Ford K. Hick,* Professor of Medicine: In a similar turn of thought, I wonder about the incidence of diarrheas of nervous origin.

*Dr. Dolkart*: I feel strongly that the tendency to explain symptoms in gastroenterology on a psychosomatic or, as it were, allergic basis, is dangerous. One cannot overemphasize the importance of the fact that even those patients in whom psychosomatic or allergic factors are suspected must be completely evaluated to rule out organic diseases of the gastrointestinal tract. I always remember the case of a 72-year old woman who came to our office after a friend and neighbor died from cancer. She had no complaint except constipation of forty years duration, no different than formerly. To provide reassurance, it was thought that the quickest and most diagnostic study could be afforded by a barium enema. We found an annular carcinoma of the sigmoid.

*Dr. Hick*: Would you say a few more words about the management of diarrhea, particularly about the optimal dosage of atropine?

*Dr. Dolkart*: We use three 1/100 grain tablets sublingually during a twenty-four hour period. Paregoric, or powdered opium, by the way, are often quite useful in the control of diarrhea if the patient does not vomit. In amoebic dysentery we feel that a diet which changes the nutritional environment is one of the most important therapeutic procedures. Unlike herbivores, lions and tigers, which live on a high protein diet, have no trophozoites in the gastrointestinal tract.

*Dr. Robert M. Kark,* Professor of Medicine: Dr. Dolkart mentioned the problems of potassium depletion in diarrhea. I agree that the serum potassium levels, particularly when they are normal, tell us little about the over-all potassium reserve. If serum levels are low, on the other hand, one should suspect that there is a depletion of potassium in the tissue. Satisfactory methods to determine the tissue level certainly would be a great help in understanding the clinical complications of diarrhea.

*Dr. Max M. Montgomery,* Associate Professor of Medicine: Do you believe that the abdominal distension which people develop after diarrhea is due to potassium deficiency?

*Dr. Dolkart*: I hesitate to answer this question with "yes" or "no," but I am certain that it is possible.

*Dr. Basil Anastopoulos,* Instructor in Parasitology, Department of Medicine: In the differential diagnosis of diarrheas I do not feel as pessimistic as Dr. Dolkart. I think that well-trained individuals should be able to differentiate trophozoites of pathogenic and saprophytic amoebae.

*Dr. Dolkart*: Using your criteria, what incidence of amoebic dysentery do you find in your patients?

*Dr. Anastopoulos*: Between four and five per cent of our cases carry entamoeba histolytica, between seven and eight per cent entamoeba coli.

*Dr. Dolkart*: Your figures compare well with our own findings.

*Dr. Melvin M. Chertack,* Clinical Instructor in Medicine: You have recommended chloroquine in the treatment of those cases of amoebiasis which are accompanied by tissue invasion. Chloroquine is probably one of the best amoebicidal agents, particularly if the liver has been invaded. On the other hand, the intestinal form of amoebiasis does not appear to explain well chloroquine administration. Dr. Conan and his co-workers in New York have shown chloroquine is rapidly absorbed from the upper intestinal tract and concentrated in the liver, which explains its effectiveness in patients with hepatic involvement. I wonder whether it might not be possible to produce an adequate concentration of chloroquine in the entire gastrointestinal tract: this would make chloroquine the drug of choice for both lumenal and extralumenal amoebiasis.

*Dr. Dolkart*: If this could be accomplished, it would indeed facilitate the management of amoebiasis. Chloroquine is a mildly toxic drug, of course, and I would be inclined to believe that it would be difficult to produce an adequate concentration in the gastrointestinal tract and still keep the toxicity for the patient as a whole at an acceptable level. I am glad that you are so careful in the use of your terms describing the involvement of the liver in amoebic dysentery. I always feel that there is a great deal of misconception as to what happens to the liver in amoebiasis.

*Dr. Kark*: Could you explain why "amoebic hepatitis" is so rare in Chicago, while in England many of such patients are reported — often

without liver abcess.

*Dr. Dolkart*: What are your criteria for amoebic hepatitis?

*Dr. Kark*: I would say that the findings should include amoebic cysts in the stools, titrations of the liver, pathological liver tests, and response to emetine.

*Dr. Dolkart*: I have never seen actual amoebic hepatitis, although I have seen a few abcesses. One might speculate about the factors which are responsible for the discrepancy, maybe alcohol, maybe a difference in the virulence of the organisms.

*Dr. Edward E. Vicher*, Assistant Professor of Bacteriology: Antibiotics have their place, I believe, in bacterial diarrheas, which, by the way, are not uncommon even in this area. With regard to amoebic dysentery, I agree with Dr. Dolkart that the early use of antibiotics is contraindicated, although I understand that newer and more effective antibiotics have just been released for clinical trial.

*Dr. Dolkart*: Bacterial diarrheas, of course, should occur in the isolated and traceable outbreaks. I remember a very severe epidemic which was caused by a growth of staphylococci in hollandaise sauce kept in a hotel in a steam table at incubation temperature. It is interesting in this respect to remember the major epidemics of amoebic dysentery in Chicago. The first outbreak, which took place during the World's Fair in 1933 and involved more than two thousand cases, was caused by some faulty connection between pipes carrying drinking water and sewage in one of the local hotels. The mortality rate was high, particularly in those cases which returned home, were misdiagnosed as appendicitis and operated upon. The second epidemic occurred two years later on a hot day when people during a fire were drinking water from a fire hydrant. The third epidemic which has come to my attention originated in a newly-opened foundry which used city water for drinking, but water from the sanitary canal for cooling of the molds — there, too, some incorrect plumbing had been at fault.

*Dr. Kark*: Experience in Korea has shown that preventive administration of amoebicidal agents appears to be a sound rationale. Do you feel that people should take protective medication on a trip, for instance, to Mexico?

*Dr. Dolkart*: I cannot see any reason why not. I, for one, would probably take diodoquin three times a day for the duration.

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## GERIATRIC PATIENTS

There are three major categories of geriatric patients. (1) the short term patient with an illness under six months ordinarily is subject to rapid rehabilitation. The patient frequently is cared for by the general hospital. (2) The long term patient requires care from six months to two or three years; he may even make a much slower recovery. He frequently is found in the specialized hospital for chronic diseases. (3) Patients with extreme handicaps and severe impairments of health have a less encouraging outlook for complete recovery but, nevertheless, can improve. They generally are found in chronic disease hospitals, in welfare institutions, custodial and nursing homes, and even homes for the aged. *A. P. Merrill, M.D. Hospitals For The Chronically Ill. New York J. Med., Oct. 1, 1952.*

# CASE REPORTS

# Cat Scratch Disease

**Thomas J. Fitzpatrick, M.D. and Lewis W. Woodruff, M.D.**
**Joliet**

A new clinical disease entity, known as cat scratch disease, was first reported in 1950.[1] A review of this subject by Daniels and Mac Murray[2] as well as an editorial[3] have been published recently. Numerous reports have appeared in the past two years in the foreign literature.

The disease is characterized by an initial lesion, usually occurring at the site of a cutaneous scratch, most often by a cat and producing regional lymphadenitis, generally suppurative and sterile. The disease is self limited with only mild constitutional symptoms.

A fifty-seven year old, white housewife, was referred on November 7, 1951, because of an indolent ulcer on the left forearm. She reported that on about September 26, 1951, five or six days after being scratched by a kitten, she noticed a red papule on the lateral aspect of her left wrist, which was lanced without resultant drainage. Several days later an ulcer formed which failed to heal. A tender left axillary lymph node became palpable two weeks after the appearance of the primary lesion. Biopsy of the ulcer four weeks after its appearance was reported as a granuloma of non-specific appearance.

When first seen on November 7, 1951, she appeared to be a healthy, white, female, except for an ulcer measuring 8 mm. on the lateral aspect of her left wrist. The edges of the ulcer were raised, indurated and red. The crater was covered with a light crust; and no drainage was evident when this was removed. A 3 cm. firm, tense, slightly tender left axillary lymph node was palpable. No epitrochlear lymph nodes were felt. She denied systemic symptoms and remained afebrile excepting one day when a temperature of 99.4 degrees occurred.

Initial laboratory data revealed a red cell count of 3,750,000, hemoglobin of 10.6 gm., white cells numbered 7,600 of which 64% were segmented forms, 32% lymphocytes and 4% stabs. Urinalysis was normal. An agglutination

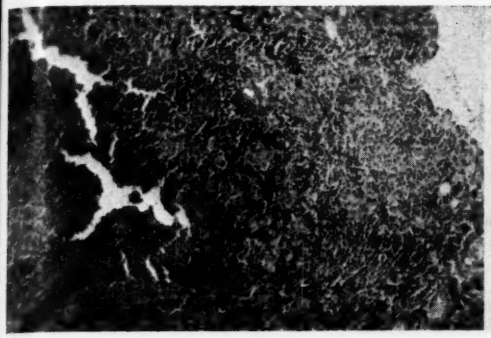

**Figure 1. Low power field of axillary lymph node. Giant cells and round cell infiltration can be seen.**

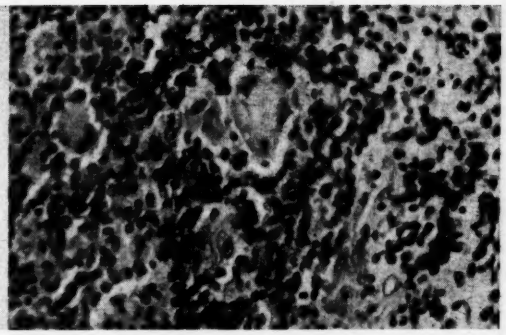

**Figure 2. High power view of axillary lymph node showing granulomatous character of lesion. Many giant cells are seen and a large number of the round cells are seen to be plasma cells.**

test for tularemia was negative three times during the course of the illness. Brucella agglutination and a tuberculin skin test were negative. Chest x-ray was normal.

She received streptomycin and chloromycetin throughout her hospital stay neither of which appeared to materially influence the course of the disease.

On November 8, 1951, an attempt to excise the axillary lymph node in toto failed because it was found to be tensely suppurative. Pus removed at operation showed no organisms on direct smear, and guinea pig inoculation and culture for tuberculosis were negative. Culture on Sabaraud's medium for fungi showed no growth. Direct smear of the lymph node revealed no acid fast organisms and pathological examination revealed grossly several soft, tannish fragile pieces of tissue. On microscopic examination a non-specific inflammatory reaction with collections of polys was reported. In some areas the lesion was granulomatous in character with giant cells and round cell infiltration. (Figures 1 and 2)

The axillary wound healed in ten days but the primary lesion pursued its indolent course and eventually healed on January 19, 1952, almost four months after its appearance.

The correct diagnosis was not suspected until the patient had left the hospital. No pus was available at this time for preparation of an antigen for skin testing our patient, but Dr. Worth B. Daniels of Washington, D. C., kindly furnished us with an antigen. The skin test was not performed until February 4, 1952, some four months after appearance of the initial lesion. At this time a skin test was positive, giving an 8 mm. round central papule surrounded by an erythematous wheal measuring 21 x 19 mm.

It was reported that the kitten involved in the case had been in evident good health until about two weeks after the scratching incident at which time it suffered a three day illness characterized by anorexia and listlessness. Recovery was spontaneous. There were no further cases in the patient's household and at present the patient has recovered entirely without residual effect other than healed scars on her left wrist and left axilla.

## SUMMARY

A typical case of cat scratch disease is presented. This is a new disease, characterized by an initial lesion at the site of cutaneous trauma, usually by a cat scratch and followed by regional lymphadenitis with mild constitutional symptoms. There is slow spontaneous healing of the primary lesion. A positive skin test with antigen prepared from a suppurative lymph node of a known case has been demonstrated. No etiological organism has thus far been identified. The case presented here failed to respond to the administration of streptomycin and chloromycetin.

250 N. Ottawa St.

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# NEWS OF THE STATE

## ADAMS

**Symposium on Diabetes Mellitus.**—The Adams County Medical Society devoted its meeting in Quincy, November 10, to a symposium on problems of diabetes mellitus in various fields. Dr. Roger G. Clark was moderator. Speakers included Drs. Kent W. Barber, surgery; James H. Cravens, pediatrics; Hugh S. Espey, cardiovascular diseases; Richard A. Harris, anesthesia; Robert C. Murphy, pathophysiology, and E. Hayden Keys Jr., obstetrics and gynecology.

## CHAMPAIGN

**Regional Meeting on Heart Disease.**—The Champaign County Medical Society held its November 6 meeting in conjunction with the regional clinical conference of the Illinois Heart Association. Dr. Thomas W. Kelson, Champaign, presided. Speakers included Joseph R. W. Christian, assistant clinical professor of pediatrics, Stritch School of Medicine of Loyola University, "Latest Developments in the Treatment of Rheumatic Fever"; Oglesby Paul; assistant clinical professor of medicine, University of Illinois College of Medicine, "Treatment of Congestive Heart Failure"; Chauncey C. Maher, associate professor of medicine, Northwestern University Medical School, on Recent Advances in Management of Hypertension. Dr. Jack D. Huff, Champaign, was moderator at a panel discussion with the above speakers and Dr. Wright Adams, professor and chairman of the department of medicine, University of Chicago School of Medicine. In the evening session, with Dr. Lewis T. Gregory, Urbana, president of the Champaign County Medical Society, and Dr. V. Thomas Austin, Urbana, president of the Illinois Heart Association, presiding, Dr. Adams discussed "Management of Arteriosclerosis."

## COOK

**Julius Hess Receives Borden Award.**—Dr. Julius H. Hess, senior attending physician at Michael Reese Hospital, received the Borden Award during the meeting of the American Academy of Pediatrics in Chicago, October 22. The award is one of the highest in the field of pediatrics. Dr. Hess established the first premature infant station in 1922 at Michael Reese Hospital with a total of eight cribs; facilities for forty infants are now available. According to the Chicago Tribune, 9,022 babies have been cared for by the station; 6,547 were "graduated". Excluding babies who died within forty-eight hours after being admitted, 90.19 per cent have survived.

**Harley Cluxton Named to Reorganize Northwestern's Clinics.**—Dr. Harley Cluxton, clinical assistant in medicine at Northwestern University Medical School, has been appointed director of the school's clinics, which he has been assigned to reorganize. Dr. Cluxton is a former director of medical research for Armour Laboratories in Chicago. In World War II, he rose to the rank of major and was twice decorated for his work in rheumatic diseases at the Army and Navy General Hospital, Hot Springs, receiving the unit citation and the army commendation medal for meritorius service.

**New Committee to Survey Tuberculosis Facilities.**—Mayor Martin Kennelly on November 8 named an eleven member advisory committee to survey

all existing facilities for the care of tuberculosis patients in Cook County. It is hoped that the committee will determine the answer to the need for more tuberculosis treatment facilities in this area and coordinate the efforts of Chicago and Cook County Tuberculosis programs now carried on by the Chicago Municipal Tuberculosis Sanatorium, the Tuberculosis Institute of Chicago and Cook County, the Oak Lawn Sanatorium, Suburban Tuberculosis District of Cook County, the county hospital, and as well as-the proposed program planned by the state department of health.

Members of the newly appointed committee, which was requested by the Chicago Medical Society through action taken at its December 1951 meeting, are Dr. James H. Hutton, Chicago Medical Society; Dr. Willard Van Hazel, Institute of Medicine of Chicago; Dr. Ernest E. Irons, Municipal Tuberculosis Sanatorium; Herbert De Young of the tuberculosis institute; Charles A. Tweedy, railroad brotherhood official; Alexander Ropchan, Metropolitan Welfare Council; Edna E. Nicholson, representing women's groups Homer J. Buckley, Civic Federation; Hale Nelson, Association of Commerce and Industry; Ald. Louis London (24th) and State Rep. Fred J. Smith (3d).

**Specialty Group Meetings.**—The Chicago Rheumatism Society was addressed October 29 by Arnold Black and Simon Zivin on Unusual Manifestations of Gout; Eugene F. Traut, Alva A. Knight, Paul Szanto and Edwin W. Passerelli, on "Specific Vascular Changes in Gout", and George M. Hass, Certain Concepts of Maintenance and Degradation of Connective Tissue in Disease."—The Chicago Pathological Society was addressed, November 10, by Earl Benditt on "Histochemistry of Connective Tissue: The Specificity of Enzyme Preparation in the Detection of Polysaccharide Constituents"; James B. McCormick, "Studies in a Case of Choriocarcinoma", and Ephraim A. Grief and F. L. Phillips, "Rhabdomyosarcoma of the Prostate."—At a meeting of the Chicago Neurological Society, the following spoke: Roland Mackay, "Multiple Sclerosis: Onset and Duration with Case Reports"; Prof. Herbert Olivecrona, Stockholm, Sweden, "Hypophysectomy in Man," and Robert B. Lewy, "A Critical Evaluation of Surgical and Medical Treatment of Vertigo and Meniere's Disease."—Renee Gelman discussed "The National Blood Program" before Branch number 2 of the American Medical Women's Association, November 12.—Cleveland J. White addressed the Metropolitan Dermatological Society of Chicago, November 12, on "Histopathology of the Disease of the Nails."—"Recent Advances in the Clinical Uses of Radioisotopes" was the theme of the meeting of the Chicago Roentgen Society, November 13, with Dr. Sam Kruger discussing the medical aspects and Theodore Fields, physicicist, Radioisotope Unit, Hines Hospital, the physical.

**Scientists Cited for Special Service.**—When the University of Chicago conferred honorary doctor of science degrees on seven distinguished medical scientists recently at the twenty-fifth anniversary of its medical center, it honored two of its own great men.

Dr. Anton J. Carlson, professor emeritus of physiology at the university and the nation's senior scientific statesman, and Dr. Percival Bailey, alumnus and leading authority in the field of brain tumors, were awarded the degrees by Chancellor Lawrence A. Kimpton.

Dr. Carlson was cited as "an inspiring and stimulating teacher and a critical investigator, who advanced knowledge of the heart, the gastro-intestinal track, and the endocrine glands."

Dr. Bailey, professor of neurological surgery at the University of Illinois, who served as first chairman of the University of Chicago department of neurosurgery at its founding in 1927, was honored as "physician, surgeon, pathologist, neurologist and classifier of brain tumors."

The honorary degrees to Drs. Carlson and Bailey and five other of the nation's leading surgeons and physicians were conferred at 11 a.m. at Rockefeller Memorial Chapel.

A special convocation, held to commemorate the founding of the only university medical group which has a fulltime staff, the ceremony opened with an academic procession from Ida Noyes Hall to the Chapel.

Marching in the procession were Dr. Leonard A. Scheele, surgeon-general of the United States, Dr. Lowell T. Coggeshall, dean of the medical center, deans from 20 of the nation's medical schools and representative of the medical societies of the U.S.

Dr. Franklin D. Murphy, chancellor of the University of Kansas and former dean of its medical school, delivered the convocation address on "Medicine's Expanding Horizons."

**Appointments at Illinois.**—Appointment of Drs. Erika Fromm and Louis Halperin to the faculty of the University of Illinois College of Medicine with the rank of clinical assistant professor has been announced by Dean Stanley W. Olson.

Dr. Fromm has been appointed as clinical assistant professor of psychology in the Department of Otolaryngology. She is directing the psychological part of the Department's project on the diagnosis, psychotherapy, and educational handling of the brain-injured child.

Dr. Fromm recieved her Ph.D degree, magna cum laude, from the University of Frankfurt, Germany. She has been associated with the University of Amsterdam, Holland, and the University of Chicago, and now is teaching on the postgraduate level at the Institute for Juvenile Research.

Dr. Halperin, a staff psychiatrist at the Veterans Administration Mental Hygiene Clinic in Chicago, will be associated with the Department of Psychiatry. He will teach students and residents and supervise their cases in the Outpatient Clinic of the Department.

He received the doctor of medicine degree from

the University of Basle, Switzerland, in 1936. He is certified in psychiatry by the American Board of Psychiatry and Neurology.

**Illinois Plans to Man 1,000 Bed Hospital.**—The University of Illinois College of Medicine has signified its intent to furnish the professional staff for a 1,000-bed general hospital if this country should become involved in a war, Dean Stanley W. Olson has announced.

This action was taken by the Executive Committee of the College of Medicine following receipt of an invitation from Major General George E. Armstrong, surgeon general of the U. S. Army.

Under this plan, the 1,000-bed general hospital would be activated on M-Day plus 12 months. The University would furnish the trained personnel for the medical and dental professional staff, and as much of the nursing and ancillary professional staff for such a unit as possible.

The University of Illinois assumed a rather similar responsibility in World War II. The University sponsored the 27th Evacuation Hospital which cared for 21,000 patients in almost two years of service in the Mediterranean and European theaters.

**New Microbiology Head.**—James G. Shaffer, Sc.D., associate professor of bacteriology and virology at the University of Louisville School of Medicine, has been appointed professor and chairman of the department of microbiology and public health at the Chicago Medical School.

**Psychosomatic Medicine.**—"Understanding Psychosomatic Disorders" is the theme of a series of lectures that opened at the North Shore Health Resort, Winnetka, October 1, with a talk by Dr. Franz Alexander, director of the Institute for Psychoanalysis, Chicago, on "General Principles." Other lectures in the series are:

Nov. 5, 1952 — Digestive System — THOMAS S. SZASZ, M.D., Staff Member, Chicago Institute, For Psychoanalysis.

Dec. 3, 1952 — Respiratory System — GEORGE C. HAM, M.D., Professor and Chairman of the Dept. of Psychiatry, University of North Carolina, Chief of Psychiatry at the North Carolina Memorial Hospital.

Jan. 7, 1953 — Cardiovascular System (Hypertension) — NATHANIEL S. APTER, M.D., Head and Associate Professor of Psychiatry, University of Chicago.

Feb. 4, 1953 — Genitourinary System — IRVING J. SHAPIRO, M.D., Chairman of the Department of Urology, Michael Reese Hospital, Chicago.

Mar. 4, 1953 — Skin — JOSEPH G. KEPECS, M.D., Associate Psychiatrist, Institute for Psychosomatic and Psychiatric Research and Training of Michael Reese Hospital, Chicago.

Apr. 1, 1953 — Musculoskeletal System — H. M. SEROTA, M.D., Ph.D., Chief of Liaison Psychiatry, Institute for Psychosomatic and Psychiatric Research and Training of Michael Reese Hospital, Research Associate of the Institute For Psychoanalysis, Chicago and Assistant Professor of Nervous and Mental Diseases of Northwestern University Medical School.

May 13, 1953 — (Second Wed.) — Endocrine-Metabolic (Allergy) — I. ARTHUR MIRSKY, M.D., Professor and Chairman of the Dept. of Clinical Science and Professor of Research Psychiatry in the Dept. of Psychiatry, School of Medicine, University of Pittsburgh.

June 3, 1953 — Nervous System (Headache) — BENJAMIN BOSHES, M.D., Professor of Nervous and Mental Diseases, Northwestern University Medical School.

**Henry Pinkerton Lectures.**—Dr. Henry Pinkerton, professor of pathology and director of the department of pathology, St. Louis University School of Medicine, will deliver the sixteenth Christian Fenger Lecture on Friday evening, January 16, 1953, at the Palmer House. His subject will be "New Horizons in Virus Research."

**Dr. Willard Thompson Honored.**—Dr. Willard O. Thompson, professor of medicine, University of Illinois, has been named by the Mississippi Valley Medical Society as its Distinguished Service Award Recipient for 1952. The award, consisting of a gold medal and a certificate, was presented to Dr. Thompson at the annual meeting of the society in St. Louis. The society presents the distinguished service award annually to one of its members "who has rendered unusual and distinguished service to the medical profession." Dr. Thompson is managing editor of the *Journal of Clinical Endocrinology* and past president of the Mississippi Valley Medical Society and of the Chicago Medical Society.

**Gehrmann Lectures.**—F. M. Burnet, M.D., director of the Walter and Eliza Hall Institute for Medical Research, Melbourne, Australia, gave the 1952 Gehrmann Lectures at the University of Illinois College of Medicine, November 13. Titles of the lectures were "Lessons from Two Mosquito-Borne Diseases, Human Encephalitis and Myxomatosis of Rabbits," and "Genetic Studies of Influenza Virus." The lectureship was established in memory of Dr. Adolph Gehrmann who, for many years, was professor of bacteriology at the University of Illinois College of Medicine and its predecessor institution, the College of Physicians and Surgeons of Chicago.

**Franz Alexander Honored.**—Dr. Franz Alexander, who has been head of the Institute for Psychoanalysis, Chicago, since its inception twenty years ago, was honored at a dinner in October, commemorating the organization's establishment. The institute has 150 students. More than 600 graduates, representatives of associate groups and friends joined in the scientific discussion sessions in the morning and afternoon. Principal speaker at the dinner was Dr. Raymond B. Allen, chancellor of the University of California at Los Angeles.

**New Heart Station at Wesley.**—A new Heart Station has been established at Wesley Memorial Hospital to provide expanded facilities for exploring heart diseases.

Dr. Gerald R. Graham, formerly associated with Western Reserve University in Cleveland, has been appointed Director of Cardiovascular Research and placed in charge of electrocardiography at the hospital with the responsibility of setting up and directing the Heart Station.

With the new facilities, Wesley is able to serve an increased number of heart patients requiring special tests. One such test is cardiac catheterization for congenital and rheumatic heart disease victims.

In performing a cardiac catheterization, a woven nylon tube not much larger than a pencil point is painlessly inserted into a vein in the patient's arm. Next, the tube is advanced through the vein until its tip enters the heart.

In this test, doctors take pressures and draw blood from various parts of the heart. From the types of blood they obtain, they can determine if a defect (a shunt) is present in the heart wall letting blood flow from one side of the heart to the other. From the pressure readings, the doctors can conclude whether the heart is straining to pump blood through a diseased valve or blood vessels of the lung. Also, they can calculate the amount of blood pumped by the heart.

During all heart operations, Dr. Graham will take electrocardiographic tracings and record pressures in the heart chambers during all stages of the surgery. This procedure will show whether the operation is relieving the defect.

Dr. Graham comes to Wesley from Michael Reese Hospital where for the past two years he served as research associate in the Cardiovascular Department in charge of clinical research. He received his M.D. degree from Western Reserve University and was an instructor in physiology for five years.

In addition to his appointment at Wesley as a member of the Department of Medicine, he will be an assistant professor of medicine at Northwestern University Medical School.

**Medical Education for National Defense.**—All first-year students at the University of Illinois College of Medicine are participating this fall in a pilot program of Medical Education for National Defense. This long-range program is designed to be "an acceptable substitute" for the Reserve Officers Training Program in medical schools.

The University of Illinois has been allocated $15,000 by federal agencies to underwrite the costs of the program during this academic year. Similar pilot programs are being conducted at four other medical schools—University of Buffalo School of Medicine, Vanderbilt University School of Medicine, Cornell University Medical College, and the University of California School of Medicine.

An objective of the program is to enable medical students to gain a better understanding of the role of the physician in society, including the responsibility for the medical programs of the armed forces.

At the present time, first-year students are enrolled in a course in "Emergency Surgery" which is being offered by Dr. John Van Prohaska on Monday afternoons. In connection with this course, two medical students are assigned each evening to the emergency service at Cook County Hospital. There, they serve as observers on M.E.N.D. clerkships.

Clinical sessions in anatomy, biological chemistry, and physiology also are integrated into the program. For example, the Department of Anatomy is devoting its regular one-hour clinical session each Friday to presentation of cases or examples of peripheral nerve injuries, burns, fractures, infections, vascular and corneal grafts, injuries to blood vessels, concussion, and cold injury. These clinical presentations are timed appropriately with the students' study of nerves, epithelium, bones, connective tissue, blood vessels, and the central nervous system, etc.

Dr. George V. Byfield, clinical assistant professor of medicine, is serving as coordinator of the University of Illinois' pilot program. Serving in an advisory capacity are Dr. Mark H. Lepper, associate professor in charge of preventive medicine, and Dr. William V. Whitehorn, associate professor of physiology.

**Planning Conference on Tuberculosis.**—The Suburban Cook County Tuberculosis Sanitarium District conducted a planning conference at the Edgewater Beach Hotel, November 20. The following program was presented:

1:00 PM INTRODUCTION — By Robert W. Keeton, M.D., President of the Board of Directors of The Suburban Cook County Tuberculosis Sanitarium District.

1:15 PM Panel 1. CASE FINDING — Panel Chairman: Jerome R. Head, M.D., Chairman of the Medical Advisory Committee to the Board of Directors of The Suburban Cook County Tuberculosis Sanitarium District; Discussion Leader: Robert J. Anderson, M.D., Chief, Division of Chronic Diseases and Tuberculosis, Public Health Service, Washington, D.C.; Participants: William B. Tucker, M.D., Chief, Tuberculosis Service, Veterans Administration Hospital, Minneapolis, Minnesota, Mr. Herbert C. DeYoung, Pres., The Tuberculosis Institute of Chicago and Cook County.

2:15 PM Panel 2. MEDICAL CARE — Organization of Medical Staff and Clinical Investigation — Panel Chairman: Robert H. Ebert, M.D., Chief, Division of Pulmonary Diseases, Billings Hospital, University of Chicago; Co-Chairman: Robert L. Grissom, M.D., Asst. Prof. of Medicine, University of Illinois; Discussion Leader: William B. Tucker, M.D.; Participants: Henry Wilson, M.D., Assoc. Prof. of Medicine, Northwestern University; Howard J. Shaughnessy, Ph.D., Asst. Dir. and Chief, Division of Laboratories, Illinois Dept. of Public Health; William Adams, M.D., Prof. of Surgery, Billings Hospital, University of Chicago.

3:15 PM Recess.

3:45 PM Panel 3. ADMINISTRATIVE ORGANIZATION OF THE DISTRICT REHABILITATION AND SOCIAL SERVICE — Panel Chairman: Karl Pfuetze, M.D., Medical Director and Supt., Chicago State Tuberculosis Hospital; Discussion Leaders: Robert E. Plunkett, M.D., Asst. Commr. and Chief, Tuberculosis Control, New York State Department of Public Health; Mr. Ray Brown, Supt. of University Clinics, Billings Hospital, University of Chicago.

5:00 PM Fellowship Hour.

6:30 PM Dinner Meeting — Summary of Panels —

Dr. Jerome R. Head, Dr. Robert H. Ebert, and Dr. Karl Pfuetze.

*TUBERCULOSIS: A GLIMPSE INTO THE FUTURE* — Speaker: Dr. James Perkins, Medical Director, National Tuberculosis Association.

## EFFINGHAM

**Cornerstone Laid for St. Anthony's Hospital.**—Special ceremonies to mark the laying of the cornerstone of the new St. Anthony's Hospital in Effingham were held September 21. Bishop William A. O'Connor, Springfield, placed the cornerstone and Dr. Roland R. Cross, director, Illinois Department of Public Health, gave the principal address.

The new 150 bed hospital will be constructed at a cost of about $4,000,000, with the state and federal governments providing approximately $2,000,000. The hospital replaces the 72 year old St. Anthony's Hospital which was destroyed by fire in 1949.

## KNOX

**Society News.**—A motion picture on the diagnosis and incidence of cancer of the female genitalia featured the September 18 meeting of the Knox County Medical Society at the Galesburg Club, Galesburg.

## LAKE

**Society News.**—Dr. Oglesby Paul, associate professor of medicine, University of Illinois College of Medicine, discussed "Treatment of Congestive Heart Failure" before the Lake County Medical Society in October. Dr. Edward E. Avery, Chicago, addressed the society November 11, on "Cardiac Surgery in Adults with Rheumatic Heart Disease."

## LA SALLE

**Society News.**—Dr. Abraham L. Aaronson, assistant professor of medicine at the Chicago Medical School, addressed the La Salle County Medical Society, November 13, near Streator, on "Office Practice of Allergy and the Use of ACTH and Cortisone in Allergic Diseases."

## MACON

**Society News.**—Dr. James K. Stack, associate professor of surgery, Northwestern University School of Medicine, addressed the Macon County Medical Society at its meeting, in Decatur, October 28. His subject was "Indications for and Use of Intra-Medullary Nail in the Lower Extremity."

**Emergency Call System.**—The Macon County Medical Society had set up an emergency call system, under the direction of Dr. Vernon Long, Decatur, and members of his committee. As now organized, the society plans to use every member of the society, regardless of specialty, on the call system. According to the Bulletin of the Macon County Medical Society, "In the event that the number of volunteers is insufficient, some other procedure will have to be proposed. In this case, it would seem," the bulletin points out, "that the only fair procedure for all concerned, would be to require that every active member of the society take his turn on the call board. It might be possible to excuse a few members because of age, but certainly not on the basis of specialty practice. No matter what specialty a physician practices, he has been trained in general medicine and surgery, he is therefore competent to examine cases and can assume responsibility for assigning cases not in his field to someone else. However, if enough volunteers are obtained no other alternate proposal will be necessary", the bulletin concludes.

**Joint Meeting on Chest Diseases.**—At a joint meeting of the Macon County Medical Society and the Illinois Chapter of the American College of Chest Physicians, and the Illinois Chapter of the American Trudeau Society, in Decatur, November 14, Dr. Robert G. Fox, Chicago, spoke on "When Is an Intrathoracic Disease a Surgical Problem"; Dr. Paul A. Alfano, Chicago, "Recognition and Treatment of Acute Chest Emergencies", and Dr. Robert H. Ebert, Chicago, "Problem of Diagnosis of Chronic Chest Diseases."

## McLEAN

**Pediatric Meeting.**—The Illinois Central State Pediatric Society met in Bloomington, November 12-13. Speakers included Julius B. Richmond, on "The Pediatrician and the Teacher Look at the Child"; Stanley S. Marzloff, "The Child with Behavior Anomalies"; Dorothy Eckelmann, "Cooperative Planning for Children with Speech Diviations"; Glen J. Taylor, "The Child with Hearing Loss"; March C. Sarah, "The Reading Laboratory", and Lily May Richman, Ph.D., "The Laboratory School in Relation to Special Teacher Education."

## SANGAMON

**Society News.**—Dr. Henry T. Ricketts, associate professor of medicine, University of Chicago School of Medicine, discussed "Diabetes Mellitus" before the Sangamon County Medical Society at its meeting in the Elks Club, Springfield, November 6.

**Personal.**—Dr. H. Ivan Brown, a member of the staff of the University of Illinois College of Medicine, Chicago, has been appointed pathologist at St. John's Hospital, Springfield.

## ST. CLAIR

**Fifty Year Club Members.**—On October 24 the St. Clair County Medical Society honored four members who were inducted into the Fifty Year Club of the Illinois State Medical Society. New members who have been in practice fifty years or more are Drs. R. F. Stanton, Sr., E. C. Spitze, O. J. Culbertson, and H. A. Cables. Dr. W. W. Fullerton, Sparta, Councilor of the Tenth District, made the presentation of the insignia and certificate acknowledging membership in the Fifty Year Club.

## VERMILION

**Society News.**—"Use and Abuse of Hemotherapy" was discussed by J. Garrott Allen, associate professor of surgery, University of Chicago School of

Medicine, before the November 4 meeting of the Vermilion County Medical Society in Danville.

## GENERAL

**Evanston Believed First to Follow Recommendation of School Health Conference.**—One of the first communities, if not the first, to follow through with a local conference on physicians and schools as a direct result of the National conference on physicians and schools and the first Illinois State Conference on Physicians and Schools, has been the City of Evanston.

This conference was held on November 10, 1952 at the Evanston Township High School with more than seven hundred teachers, representing all public and parochial schools of the city participating. William J. Hixon, Health Educator for the Evanston Health Department acted as general chairman of the conference. The conference was planned and sponsored by the Evanston Health Department, the schools of Evanston and the local medical and dental societies.

Dr. John L. Reichert, Chairman of the Committee on School Health of the American Academy of Pediatrics acted as the moderator for the morning session. Dr. John L. Bracken, Superintendent of Schools, Clayton, Missouri, delivered the main lecture at the morning session speaking on "The Positive Approach to Health in Our Schools."

The afternoon session included three group meetings, speakers for these three group meetings were Miss Marjorie Young, Consultant in Education for the National Society for the Prevention of Blindness, New York City; the Rev. Ralph A. Gallagher, Director of Social and Industrial Relations, Loyola University, and Dr. Bracken.

Miss Young spoke on "THE ROLE OF VISION IN EDUCATION", Father Gallagher spoke on "EMOTIONAL HEALTH IN OUR SCHOOLS" and Dr. Bracken talked again on "THE TEACHER'S HEALTH".

Chairmen for the group meetings in the afternoon were Dr. Leon Kranz, Director of Health and Physical Education at Northwestern University. Dr Matthew Gaffney, Superintendent of New Trier High School, Winnetka, Illinois and Dr. Donald A. Dukelow, Consultant in School Health for the Bureau of Health Education of the American Medical Association.

The meeting closed with a summary by Dr. Winston H. Tucker, Commissioner of Health of Evanston, who also served as the moderator for the afternoon session.

The First Illinois State Conference on Physicians and Schools was held in November 1951 under auspices of the Illinois State Medical Society and under the Chairmanship of Dr. George L. Drennan, Jacksonville.

**Graduate Conferences.**—The following Postgraduate Conferences were arranged by the Postgraduate Education Committee of the Illinois State Medical Society:

In Peoria, November 20, Pere Marquette Hotel, in cooperation with Northwestern University Medical School.

George A. Hellmuth, M.D., Chicago
Chairman of the Postgraduate Education Committee, Presiding

*Alvah L. Newcomb*, M.D., Assistant Professor in Pediatrics.
"Diagnosis and Management of Respiratory Infections."

James R. Webster, M.D., Professor in Dermatology.
"Diagnosis and Treatment of Contact Dermatitis."

John M. Dorsey, M.D., Associate Professor in Surgery.
"Diagnosis and Management of Acute Pancreatitis."

Frederick W. Fitz, M.D., Assistant Professor in Medicine.
"Do's and Don't's of Antibiotic Therapy."

James K. Stack, M.D., Associate Professor in Bone and Joint Surgery.
"Fractures and Casts."

N. S. Davis III, M.D., Assistant Professor in Medicine.
"Problems of an Aging Population."

Intermission.

Panel Discussion:
"The Treatment of Cardiovascular Disease."

George K. Fenn, M.D., Moderator, Professor in Medicine.

Gilbert H. Marquardt, M.D., Assistant Professor in Medicine.

Ernest G. McEwen, M.D., Associate Professor in Medicine.

PROGRAM

Eugene L. Slotkowski, M.D., Clinical Assistant in Pediatrics: "General Principles of Prophylaxis in Childhood."

Thomas C. Douglass, M.D., Associate Professor in Surgery: "Cholangiography During Cholecystectomy."

Walter W. Carroll, M.D., Assistant Professor in Surgery: "Radical Neck Dissection in Head and Neck Carcinoma."

Richard E. Heller, M.D., Associate in Surgery: "Anatomical Considerations in Appendicitis."

THE EVENING

Fellowship Hour—Early American Room.
Dinner—Carousel Room.

Harry L. Wells, Vice President and Business Manager of Northwestern University.
"Education's Case History."

In Joliet, December 10, Woodruff Hotel, in cooperation with the University of Illinois College of Medicine: George A. Hellmuth, M.D., Presiding.
"The General Problem of Edema."—Norman B. Roberg, M.D.

"The Pathophysiology of Edema."—A Symposium.
S. Howard Armstrong, Jr., M.D., Chairman.
Murray Franklin, M.D.
James A. Schoenberger, M.D.
"The Pathology of Edema."—Hubert R. Catchpole, Ph.D.

Localized Edema

"Angioneurotic Edema and Urticaria."
Max Samter, M.D.
"Edema of the Upper and Lower Respiratory Tract."—A Discussion.
Max S. Sadove, M.D.
Emanuel M. Skolnik, M.D.
Intermission.
"Edema Caused by Vascular Stasis."
David I. Abramson, M.D.
"Edema of Endocrine Origin."
Samuel G. Taylor, III, M.D.

Systemic Edema

A Panel Discussion—Norman B. Roberg, M.D., Chairman.
"Cardiac Edema."—Norman B. Roberg, M.D.
"Renal Edema."—James A. Schoenberger, M.D.
"Hepatic Edema."—Murray Franklin, M.D.
"Nutritional Edema."—Robert M. Kark, M.D.
"The Management of Systemic Edema."
Robert M. Kark, M.D.

EVENING

Fellowship Hour.
Dinner.
"Aging" by George E. Wakerlin, Ph.D., M.D.
Book Review

**District Meeting in Davenport.**—The quarterly meeting of Iowa-Illinois Central District Medical Association was addressed by Dr. Frederick Falls, professor of obstetrics and gynecology, University of Illinois College of Medicine, on "Role of Cesarean Section in Management of Obstetrical Difficulties." Dr. Falls was introduced by Dr. Zachary K. Romeo, Rock Island, and the discussion was opened by Dr. Richard Karraker, Moline.

**New Emergency Ambulance.**—Addition of an emergency ambulance to the Chicago Tribune medical department equipment last week spotlighted medical facilities and personnel which Dr. Theodore Van Dellen, health editor and medical director of the Tribune, says "stack up with the best offered by any company in the country."

The new ambulance, a 1952 Ford ranch wagon remodeled to hold a stretcher and oxygen tank, is to be available to transport accident cases to a nearby hospital during the late evening and early morning hours when the medical department is not fully staffed.

Two doctors and six nurses, working in a 17-room medical department, guard the health of Tribune employes on the job. Under Dr. Van Dellen's direction, the department has been expanded to include a Tribune surgeon, Dr. Harold Method, for the handling of physical examinations and surgery cases. Before Dr. Method joined the staff in June, 1951, Tribune employes were referred to an outside agency for examinations and surgical services.

Preventive measures are a part of the department's program. Free vaccinations against influenza-virus types A and B are given each fall. Free chest x-rays are available periodically. More than 150 Tribune employes took part in American Red Cross first aid classes sponsored by the department in 1951.

The medical department has charge of all first aid equipment connected with atom bomb preparedness and maintains a "walking blood bank."

"We have typed the blood of a substantial number of employes so that we can call on them as potential donors in an emergency," says Dr. Van Dellen. "We call this system our 'walking blood bank.' It is specially designed for all-out emergencies such as a bomb attack."

Margaret Lacey, who will retire on Jan. 1, served as chief nurse of the department for 13 years. On leave of absence during November, Miss Lacey will return during December to assist Mary Davison who succeeds her as chief nurse. Working in the department with Miss Lacey and Mrs. Davison are Patricia Waters, Lillian Wetton, Dora Callaghan, and Agnes Cahir, all registered nurses.

These nurses treat minor medical ailments such as sore throats, colds, strains, bruises, and minor infections. During 1951 they handled approximately 40,000 visits to the department by Tribune employes. The department made 1,572 laboratory tests and took 56 electrocardiograms, and Dr. Method and Dr. Van Dellen held 799 consultations with Tribune employes.

In addition to the medical aid supplied to employes while at work, the department, through Lois Bright, visiting nurse, also checks the progress of those who are hospitalized or sick at home. Some days she travels more than 200 miles visiting sick employes. Last year she made more than 1,500 calls.

**Change in Manufacture of Yellow Fever Vaccine.**—Following is a release dated Tuesday, October 21, 1952 from the Federal Security Agency, Public Health Service, National Institutes of Health, on the manufacture of yellow fever vaccine:

"Yellow fever vaccine, heretofore produced exclusively by the Public Health Service of the Federal Security Agency, will be manufactured in the future by a nationally known pharmaceutical firm, it was announced today by Surgeon General Leonard A. Scheele of the Public Health Service.

"Dr. Scheele's announcement was made jointly with the National Drug Company of Philadelphia and the Armed Services Medical Procurement Agency.

"Withdrawal of the Government from yellow fever vaccine production is in accord with Public Health Service policy of turning over to the pharmaceutical industry the manufacture of biological products once large-scale production becomes feasible. This step was taken following several con-

ferences with many of the major pharmaceutical houses in the United States.

"Public Health Service and military officials praised the National Drug Company for its contribution to the national interest in taking over production of yellow fever vaccine, most of which is supplied to the armed services to meet their needs. *"The Surgeon General pointed out that manufacture of the vaccine by the National Drug Company does not alter the regulations governing distribution."* (See "Weekly Report" of the Division of Preventive Medicine dated December 22, 1951.) "All eligible consumers now receiving the vaccine may continue to do so. Clinics issuing yellow fever vaccine certificates are designated by the Public Health Service in accord with the international sanitary regulations of the World Health Organization. Vaccination certificates must be obtained by travelers from a designated clinic in order to be valid for international travel.

"In conformance with the Biologics Control Law, the National Drug Company must obtain a license from the Public Health Service before it can distribute yellow fever vaccine of its own manufacture. License requirements provide that a biological product must meet established standards relating to safety, potency, and purity. The National Drug Company is now constructing special plant facilities at Swiftwater, Pennsylvania, to produce yellow fever vaccine.

"The Public Health Service has been the Nation's sole producer of yellow fever vaccine since 1942, when emergency wartime needs made it necessary that the Government assume production. The vaccine has been manufactured at the Rocky Mountain Laboratory in Hamilton, Montana, a division of the National Institutes of Health, principal research arm of the Public Health Service. Production was terminated in September."

**Surgeons in Special Ceremony.**—Ceremonies marking the end of a 35 year period in which the American College of Surgeons held a responsibility for setting standards for the nation's hospitals were held December 6, when the plan was transferred to the new Joint Commission on Accreditation of Hospitals in a program at the John B. Murphy Auditorium.

Principal speaker was Senator Lister B. Hill of Alabama, co-sponsor of the Hill-Burton Act, instrumental in constructing over 1000 hospitals especially in rural communities. Dr. Evarts A. Graham, chairman of the Board of Regents of the College, turned the new program over to Dr. Gunnar Gundersen, first Chairman of the Commission. His Eminence, Cardinal Stritch, delivered the Invocation.

From now on the American College of Physicians, American College of Surgeons, American Hospital Association, American Medical Association, and Canadian Medical Association will share responsibilities of the program. Proposal for the formation of the Commission was initiated by the College in the recognition that not only surgeons but other members of organizations concerned with medical care in hospitals should participate in the establishment and enforcement of hospital standards. This combination of organizations constitutes an important milestone in the development of health services for the American people.

Since the American College of Surgeons began its survey of hospitals in 1917, it has spent approximately two million dollars from dues paid by its Fellows for the operation of a hospital inspection and approval system. Its contribution to the improvement of the quality of medical service in American hospitals is generally recognized.

Headquarters for the new Joint Commission on Accreditation of Hospitals are at 660 North Rush Street, Chicago 11, Illinois. Dr. Edwin L. Crosby, former Director of Johns Hopkins Hospital in Baltimore, is Executive Director of the Commission.

## HEALTH DEPARTMENT ACTIVITIES

**Preliminary Figures Show Decrease in Certain Communicable Diseases.**—The Illinois Department of Public Health today released a report showing decreases in incidence of 14 major communicable diseases in the state during the first nine months of 1952 as compared to the similar period a year ago.

During the same period increases were noted in 13 of the reportable diseases and three remained on the same level as last year.

Outstanding decreases were registered in tuberculosis and the venereal diseases. Tuberculosis dropped from 5,216 to 3,438. Syphilis decreased from 7,263 to 5,805, and gonorrhea from 15,267 to 14,382.

Polio presented the most serious increase during the nine-month period, with cases increasing from 1,279 to 2,805. Measles incidence almost doubled with 31,033 cases reported to the end of September as against a total of 15,674 for the first nine months of 1951.

Complete freedom from smallpox continued during the period. No case of this one-time widespread illness has been reported in Illinois since 1947. Diphtheria cases for the period numbered 10, just one-half the total reported through September last year.

## DEATHS

HARRY E. CANFIELD, retired, Rockford, who graduated at the University of Minnesota Medical School in 1906, died in Ft. Lauderdale, Fla., September 30, aged 77.

ROBERT CLEMENTS, Danville, who graduated at Northwestern University Medical School in 1905, died in Bryson City, N. C., October 14, aged 75.

GEORGE GALLOWAY, Chicago, who graduated at College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, in 1901, died in Cannington, Ontario, Canada, September 1, aged 85.

GEORGE F. KRISTAN, Chicago, who graduated at

Loyola University School of Medicine in 1933, died October 26, aged 45.

JACOB G. KULIS, Chicago, who graduated at the College of Medicine and Surgery, Chicago, in 1905, died in the Holy Cross Hospital, August 28, aged 75, of cerebral thrombosis.

CHARLES TRACY MURPHY, Chicago, who graduated at Bellevue Hospital Medical College in 1895, died September 7, aged 79, of coronary occlusion and arteriosclerosis.

JOHN C. O'CONNELL, Rantoul, who graduated at Chicago College of Medicine and Surgery in 1914, died July 11, aged 63, of coronary occlusion. He was acting health officer of Rantoul for 28 years and affiliated with Mercy Hospital in Urbana.

ADOLPH THEODORE PAULSON, Chicago, who graduated at American College of Medicine and Surgery, Chicago, in 1905, died August 28, aged 81, of coronary occlusion and arteriosclerosis.

EVANS W. PERNOKIS, Chicago, who graduated at Harvard Medical School in 1923, died November 9, aged 54. He was member of the staff of Presbyterian Hospital for 23 years and currently was clinical associate professor of medicine (Rush), University of Illinois College of Medicine.

NORINE DEVERE SPENCER, Chicago, who graduated at Bennett Medical College, Chicago, in 1908, died October 20, aged 60.

CHARLES C. THOMAS, Chicago, who graduated at the Hahnemann Medical College and Hospital, Chicago, in 1906, died October 30, aged 72. He was on the Chicago Board of Health Staff for 42 years until he retired two years ago.

CHARLES E. TROVILLION, Alton, who graduated at St. Louis College of Physicians and Surgeons in 1891, and Barnes Medical College, St. Louis, in 1898, died August 9, aged 83, of arteriosclerosis.

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## REBELLIOUS PATIENT

A physician of my acquaintance once told me when he was faced with a rebellious patient he used the simple expedient of adopting an attitude of anger and infuriation, swearing if the patient was a male, being more subtly dominant and aggressive, if a female. He pointed out that however improper this may seem to a psychiatrist, it worked. The majority of patients thus anger-confronted stayed and seemed subdued. Out of curiosity one day I talked at length with one such patient who had been transferred from "bad" to "good" by the almost ritualistic outburst. The greater portion of his controlled conscious tension was no longer related to his disease or his environment but to this doctor. This may be an acceptable attitude for a psychiatric patient occasionally to have toward his psychiatrist, but here the psychiatrist is aware of the attitude and works with it. Part of this physician's ritual, however, included the denial of such a reaction, or if acknowledging it in part, never discussing it but continuing to act the dominant hated role. It is a serious question how efficient a physician can be as one who must minister to the ill, be their confidante and occasionally, friend, in this assumed role. It is quite possible that under these circumstances the more mature patients become the irregular discharges. *Harry A. Wilmer, M.D., Emotional Problems In Tuberculosis, J. Lancet, Apr. 1952.*

*Eskacillin* line—for use in the more severe infections:*

# 'Eskacillin 250-Sulfas'

*palatable liquid penicillin* plus *sulfonamides*

Each teaspoonful of 'Eskacillin 250-Sulfas' delivers 250,000 units of procaine penicillin G *plus* 0.5 Gm. (0.167 Gm. each) of 3 sulfonamides (sulfadiazine, sulfamerazine, sulfamethazine), thus permitting convenient t.i.d. dosage.

'Eskacillin 250-Sulfas' gives you 3 advantages over penicillin or the sulfonamides alone:

1. Wide antibacterial spectrum.
2. High antibacterial intensity.
3. Lessened chance of the development of resistant strains.

*Members of the 'Eskacillin' line:*

## 'Eskacillin 100-Sulfas'

100,000 units of penicillin and a total of 0.5 Gm. of 3 sulfonamides per teaspoonful

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# PHYSICAL MEDICINE ABSTRACTS

EMIL D. W. HAUSER, DEPARTMENT EDITOR

## THE NEUROPSYCHIATRIC ASPECTS OF REHABILITATION

Franklin G. Ebaugh, M.D., Denver, Colo. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:348, June 1952.

Psychiatrists and specialists in physical medicine are working on common ground, as far as objectives and even to some extent methods, are concerned. In psychiatry the rehabilitation of the unhappy, inept, discouraged and incapacitated psychotic or psychoneurotic patient is basically the chief concern; in physical medicine the chief concern is the rehabilitation of the physically crippled.

One of the great problems faced in rehabilitation is the maintenance of a cooperative relationship between patient and physician, patient and therapist, and others, over long periods of time. Most of the psychological problems in rehabilitation of the physically handicapped are readily understandable and can best be handled by the physicians and therapists in immediate charge of the patient. This is not intended to imply that there are not patients who should received specialized psychiatric attention, but rather that a good working relationship between the patient and his physician and therapist is the most satisfactory answer in most cases. For this reason it is frequently preferable to work, as psychiatrist, through the physicians and physical therapists and social workers on the service.

There are some patients, of course, whose psychological problems are so deep-seated and disabling that they will require the direct services of the psychiatrist. When this is the case it is of greatest importance to have the referral properly made, for a poor referral may destroy completely the chances of giving the patient adequate psychiatric care.

Working with the physical medicine specialist in a common sense and straight-forward manner, psychiatrists can contribute concretely toward helping the chronically disabled to a more complete and successful rehabilitation.

## ETHYL CHLORIDE SPRAY FOR PAINFUL MUSCLE SPASM

Janet Travell, M.D., New York. In ARCHIVES OF PHYSICAL MEDICINE, 33:5:291, May 1952.

Ethyl chloride spray at times is extraordinarily effective not only in acute myofascial pain but also in acute visceral pain. Therefore, it cannot be inferred a priori that relief of pain by this agent precludes a diagnosis of remote disease, such as a fresh myocardial infarct, and oesophageal hiatus hernia or a twisted ovarian cyst. Long-standing pain syndromes do not respond to the spray as often as do acute ones. A plea is made, therefore, for an early trial with this relatively safe remedy.

Effective application of ethyl chloride spray

(*Continued on page 42*)

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for relief of painful muscle spasm is not the simple procedure that it appears. Successful therapy with this agent depends on (1) a recognition of the pain reference patterns of the skeletal muscles, (2) knowledge of the anatomy and function of individual muscles and groups of muscles, (3) skill in executing a precise technic and (4) ability to get the patient to relax adequately during the spraying and to cooperate in carrying out active motion at the time of treatment and subsequently.

The mechanism of action of ethyl chloride spray in relieving painful muscle spasm is discussed in relation to methods of its application. This agent probably falls in the category of counter-irritants. A better understanding of the mechanisms involved should remove this important weapon against pain from the realm of empiricism and should enlarge its sphere of usefulness.

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## PRECISION OF ELBOW FLEXION ERGOGRAPHY UNDER VARYING DEGREES OF MUSCULAR FATIGUE

H. Harrison Clarke, Ed. D., Springfield, Mass. In ARCHIVES OF PHYSICAL MEDICINE, 33:5:279, May 1952.

This research was undertaken to determine the precision with which ergographic testing of the elbow flexion muscles can be accomplished under the conditions described. The subjects were 31 male students at Springfield College, who were majoring in physical education and active in athletics; in terms of body weight for height, somatotype, and basic strength, they were superior to college students in general.

The Kelso ergograph was the instrument utilized in muscular fatigue testing, and the following results were obtained:

1. A high degree of precision was obtained under conditions of mild to moderate muscular fatigue. This result was true whether the test bouts were administered ten minutes or one week apart, provided the ergograph weight load remained the same.

2. Any length lever arm may be used with consistent results. However, under conditions of mild to moderate muscular fatigue, they must not be interchanged if a comparison of total work done is to be made.

3. The effect of practice upon the results of ergographic testing was slight when muscular fatigue did not reach exhaustion states.

4. Precision in ergographic testing was maintained when weight loads were increased, provided thirty minute rest periods between test bouts were allowed and the fatigue induced fell short of exhaustion.

5. The precision of ergographic testing was reduced when exhaustion states were reached, with a thirty-minute rest period between bouts. The objectivity coefficient of 0.78, however, is sufficiently high to render encouragement to the belief that precision procedures might eventually be achieved.

---

## SEX DIFFERENCES IN REGISTRY EXAMINATION PERFORMANCE OF PHYSICAL THERAPISTS

Clay d'A. Gerken, Ph.D., Iowa City, Iowa. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:345, June 1952.

Theorizing about sex differences always present intriguing problems. This is particularly true in the occupational world, and especially so in a field like physical therapy, in which workers of both sexes receive comparable training and perform essentially the same sorts of tasks on the job. There undoubtedly would be some "academic" value in establishment of real and significant sex differences in work performance if this were possible. Probably such information would have very real practical values as well, since training programs might be designed to exploit sex differences or different sorts of tasks could be assigned depending upon the sex of the worker.

Until adequate criteria become available, or until they are developed by methods requiring the expenditure of considerably more time and effort than it probably would be wise to spend, the scores earned on the Registry examination by applicants for registration with the ARPT may serve as one partial measure of success. This achievement examination has the advantage of being a highly reliable measure, but has one disadvantage in that it measures verbal knowledge of the field only.

From the study of these examinations it has been demonstrated that men and women therapists do not differ significantly with reference

(*Continued on page* 44)

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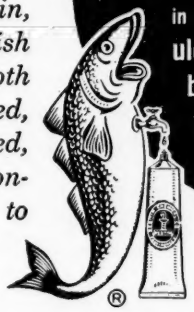

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2. Turell, R.: New York St. J. M. 50:2282, 1950.
3. Heimer, C. B., Grayzel, H. G., and Kramer, B.: Archives Pediat. 68:382, 1951.

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## Physical Medicine (Continued)

to the professional knowledge they possess if they are tested at a time when the maximum number of variables which could make for differences is controlled. Of course, it possibly may be shown that in their performance on the job, evaluated after they have had experience, either sex may be superior to the other. If this is demonstrated, the subsequent superiority must relate to factors which operate after academic training is completed or to factors which are unrelated to academic training.

It may well be that so-called "personality" factors — difficult to describe or isolate, often existing almost solely in the eyes of the beholder, and usually virtually impossible to quantity or classify-may be of considerable importance to effective work in physical therapy. On purely theoretical grounds, however, it is to be expected that sex differences of this sort may not be clearly definable. Psychological research has demonstrated that for many variables differences among people in each sex are so much greater than differences between sexes that sound conclusions with reference to sex differences are difficult to establish.

The task of demonstrating superiority of one sex in comparison with the other, at whatever point in time after training has been completed, will be an extremely difficult one. The research will require careful definition of conditions to be investigated, adequate control of variables, highly reliable objective criteria, the elimination of sources of bias, and ingenuity of a high order.

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### PRINCIPLES OF REHABILITATION IN DISSEMINATED SCLEROSIS

Ludwig Guttmann, O.B.E., M.D., M.R.C.P. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 15:8:189, August 1952.

Physical medicine has always played an essential part in the various methods of prescribed symptomatic treatment in disseminated sclerosis. However, as a rule, emphasis is laid too much, if not entirely, on the relief of specific symptoms. Patients are spending too much of their time in physical therapy departments, which, indeed all too often become dumping groups for cases in progressed stages of the disease. In order to remedy such an unsatisfactory situation, which only results in waste of manpower and public

(*Continued on page* 46)

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## Physical Medicine (Continued)

money, the person in charge of a physical therapy department should insist on re-assessment of these patients, at regular and frequent intervals, by the physician in charge of the cases, who should take full share in the responsibility for treatment, and thus prevent the misuse of the department of physical medicine.

On the other hand, it is not yet generally recognized that the methods of physical medicine in these patients — in particular, those of compensatory training to stimulate and promote the many readjustment forces in body and mind — should be systematically utilized in the early states of disseminated sclerosis. This applies not only to specific types of exercises for promoting or facilitating movement of certain muscles or muscle groups, but also to purposeful curative occupation to maintain the patient's independence in the various activities in ordinary daily life.

The peculiar nature of disseminated sclerosis, as a chronic disorder of the central nervous system, in particular, the factor of increased fatigability, which is so prominent in many patients, often makes it more difficult than in other chronic nervous disorders to assess the actual mental and physical capabilities of a patient. Therefore, a thorough, individual planning of the patient's daily activities in the various stages of the disorder is the more essential, to prevent fatigue and thus maintain or restore the patient's independence and working capability. In patients in more progressed stages, emphasis should be laid on those daily activities which involve self-care of the patient.

There is general agreement that active and passive movements of all joints represent the treatment of choice in patients with disseminated sclerosis. The type and duration of these exercises vary considerably according to the type and severity of spasticity. The primary aim of these exercises must be the achievement of relaxation of the spastic muscle groups, and in certain exercises Guttmann's pedal exerciser can be employed with great benefit. Other aids are exercises on pulleys and the Guthrie-Smith apparatus. The relaxing effect of hydrotherapy in patients with spasticity cannot be overstressed, and it is sometimes amazing to see how, after a

(*Continued on page* 48)

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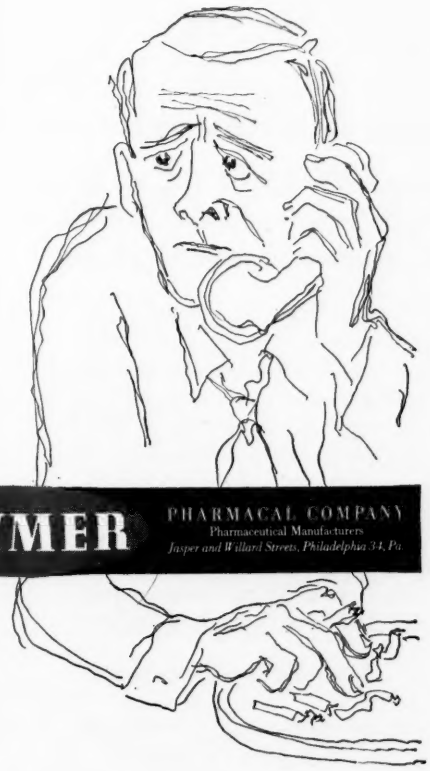

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## Physical Medicine (Continued)

prolonged bath, the isolated movements are greatly improved.

All graded exercises in cases of disseminated sclerosis, whether spastic or ataxic, demand a great deal of patience on the part of both the patient and the physical therapist. Therefore, it is obvious that sports and games adjusted to the limited abilities of the patients are of great therapeutic value, if only from a psychological point of view. Darts, table tennis, skittles, ball games, club swinging, and sometimes archery can be successfully employed.

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### PRESCRIBING PHYSICAL TREATMENT IN GENERAL PRACTICE

Odon F. Von Werssowetz, M.D. In AMERICAN PRACTITIONER, 3:4:297, April 1952.

The essentials of a prescription for physical medicine should include: (1) Diagnosis, full and complete. (2) Disability. (3) Part to be treated. (4) Precautions or restrictions to be observed. (5) Treatment procedure to be used, which includes the number and frequency of treatment, home instructions, and any other pertinent details. (6) Date of recheck by the physician. It is well to include a date on the prescription when the physician wants to reexamine the patient. On that date, the physical therapist will refer the patient to the physician and will present a comprehensive summary of the patient's progress. This serves as a check on the therapeutic program, its progression, and need for modification.

Before referring patients for physical treatment, a physician should become familiar with the training, special abilities, and limitations of the physical therapist. It also saves a lot of embarrassing explanation if the physician becomes familiar with the equipment available to the therapist, as he then will not prescribe treatment that the therapist will be unable to furnish.

Physical treatment usually is used as an adjunct to other therapeutic procedures. To gain full advantage of it, it is necessary to select the patient with care, and with the knowledge that the procedure recommended has a definite place in the treatment and will be beneficial to the patient. If the patient does not respond or show any progress within a reasonable time, then

(*Continued on page* 51)

physical therapy will not be of any value and should be terminated. This can be done only by the physician after proper evaluation of the condition. The physician should not refer for physical treatment patients whom he wants to get rid of or who show chronic or terminal illness without any hope of getting results.

Another common pitfall in prescribing physical therapy is allowing the patient to prescribe for himself. The physician should prescribe only the minimal number of different procedures that will accomplish the desired results. A "shot gun" type of prescription usually does more harm than good. And, finally, physical therapy treatments should be sufficient in number and frequency and started as early as possible to obtain the optimal results.

---

**REHABILITATION OF THE CARDIAC**

Abraham Jezer, M.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:3:139, June 1952.

The rehabilitation in the Altro Workshop project for cardiacs has been conducted for a three year period. Admitted to the Workshop were those patients whose cardiac classification was 2C and 3C, totalling 30 who had hypertensive arteriosclerotic heart disease, and 12 who had rheumatic or congenital heart disease. The result of this study seems to warrant the following tentative conclusions:

(1) For the rheumatic group, the findings indicate that the rheumatic recently recovered from subacute bacterial endocarditis or from active rheumatic carditis and those showing chronic rheumatic heart disease without congestive heart failure may carry on full time employment at a sedentary occupation. Those showing a regular rhythm and heart failure or permanent auricular fibrillation require a permanently sheltered workshop.

(2) The hypertensive and arteriosclerotic cardiac patients who show no evidence of heart failure may continue at work at their normal occupation. Those showing mild heart failure which can be controlled by mercurials, digitalis, and a salt-poor regimen may also continue working in an accustomed job, providing it is not strenuous. A modified rest regimen should be followed during week-ends.

(3) The hypertensive and arteriosclerotic having angina controlled by nitroglycerine may con-

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## Physical Medicine (Continued)

tinue to work at an accustomed job. Retraining at a less exacting job for these is socially impractical, unless the accustomed job is too strenuous. Those showing both angina and heart failure are usually quite disabled and should be permitted to work in a permanently sheltered workshop.

(4) For the elderly cardiac who cannot continue being employed full time at an accustomed job, a permanently sheltered workshop is urgently required.

(5) The major difficulty in the restoration to work of many cardiac cripples is created by the frightening approach to heart disease shown by some attending physicians. Such cardiacs are more disabled by emotional instability caused by the impact of the diagnosis of heart disease than by the effects of heart disease itself. For these, cardiac rehabilitation rather than retraining or a permanently sheltered workshop is required. Indoctrination of physicians in the psychological management of their cardiac patients is essential for progress in this field.

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### EDUCATIONAL THERAPY IN THE VETERANS ADMINISTRATION REHABILITATION PROGRAM

Louis B. Newman, M.E., M.D., and Irving R. Popell, M.A. In ARCHIVES OF PHYSICAL MEDICINE, 33:8:477, August 1952.

The authors describe the educational therapy program as instituted at the Veterans Administration Hospital, Hines, Illinois, as part of physical medicine and rehabilitation. Educational therapy plays an essential role in the rehabilitation of the sick and disabled veteran and functions in the hospital under the close medical guidance and supervision of the physiatrist. Purposeful educational activities motivate the patient for further rehabilitation, measure and develop his work capacity, develop his occupational skills, raise his educational level, build his self-confidence, and develop socially acceptable habits and attitudes. It also aids in overcoming social, psychologic, and emotional difficulties that exist to some degree in all disabled persons.

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# BOOK REVIEWS

ADVANCES IN INTERNAL MEDICINE, edited by William Dock, M.D., Long Island College of Medicine, Brooklyn, N. Y. and I. Snapper, M.D., The Mount Sinai Hospital, New York. The Year Book, Publishers, Inc., 1950. 549 pages, $10.00.

The book presents some of the important recent advances in internal medicine. The history, chemistry and uses of nitrogen mustard in the treatment of lymphomas are well condensed in the first chapter of the book by D. A. Karnofsky of New York. The problem of radioactive isotopes and the uses of isotopes in internal medicine as tracers of metabolic processes and as agents for administering various types of radiation is well outlined and discussed by L. H. Wasserman and R. Loevinger of Mount Sinai Hospital of New York City.

A. I. Brande and W. W. Spink of the University of Minnesota stress the importance of brucellosis. The epidemiological, immunological, pathological and clinical aspects of the disease are dealt with adequately.

The advances in neuromuscular disorders are outlined by McEachern and Rabinovitch of McGill University. They include the conditions which affect the lower motor neuron, the neuromyal junction or the muscle fiber. Explanations of the mechanism of some of these disorders is attempted.

For those interested in the value of sodium depletion therapy of hypertension by W. Dock of Long Island College of Medicine writes about the biological aspects of sodium intake and its relation to blood pressure level, citing evidences from animal and clinical experiments. A chapter on the anti-coagulants by Estes and Allen of the Mayo Clinic and a chapter on virus hepatitis and cirrhosis of the liver by A. J. Patek of Columbia University are well presented. The battery of hepatic tests is reviewed by H. Popper and F. Schaffner. Lastly the vascular physiology of hypertension is discussed by G. W. Pickering of the University of London. It is a compact review of up-to-date theories about the recent status of the causation of hypertension. The writer stresses the fact that a great deal has to be done before we have a clear understanding of hypertension.

This 4th volume of the series maintains the previous high standards and is valuable for students and clinician alike.

J. C. S.

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RYPINS' MEDICAL LICENSURE EXAMINATIONS; Topical Summaries and Questions. Walter L. Bierring, M.D., F.A.C.P., M.R.C.P., Edin. (Hon.) Seventh Edition, 1952. 856 pages; J. B. Lippincott Company, Philadelphia. Price $8.00.

This fine book, formerly written and edited by the late Harold Rypins, M.D., has undergone its seventh revision under the guidance of Walter L. Bierring, who likewise has edited the fifth and sixth editions. Doctor Bierring, who has long been associated with medical licensure in the United States, has again done a fine job in arranging the information to be found in this interesting volume.

A competent Editorial Review Panel of ten instructors was selected to revise the several divisions of the book. The book was intended to interest both the examiner and the examinee, and is of much value likewise to the medical student to give a review of many practical points in the field of medicine. In keeping with the times a number of title changes have been made, and the importance of the ever changing subjects of pharmacology, biochemistry, bacteriology and Preventive Medicine have been given more definite consideration.

Part one deals with the basic medical sciences; part

(*Continued on page* 56)

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two with the clinical sciences, this referring to medicine, surgery, obstetrics and gynecology, preventive medicine and public health, and a synopsis of the scope, goal and content of psychiatry.

This should indeed be of immense value to a recent graduate in medicine preparing to take his state board examinations, those interested in becoming board members, and even for medical students in the course of their regular studies—likewise, as a refresher course for practitioners who desire to brush up on many of the subjects they will find in this extensive work.

The current editor is indeed to be congratulated for the excellent job he has done to carry on the basic ideas of Dr. Rypins presented in the five editions of this popular book which carries his name. H. M. C.

---

THE EXTERNAL SECRETION OF THE PANCREAS, by J. Earl Thomas, M.D., Professor of Physiology, Jefferson Medical College of Philadelphia. Charles C. Thomas, Springfield, Illinois. 149 pages, $3.50.

This monograph summarizes our present knowledge of the external secretion of the pancreas. Sections on morphology, experimental methods, nature and function of the pancreatic juice are included, with concluding sections on humoral mechanisms of the external secretion. It should be an important reference for those interested in basic facts about the external secretion of the pancreas. J. C. S.

---

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**The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.**

THE HISTORY OF AMERICAN EPIDEMIOLOGY. By C. E. A. Winslow, Dr. P. H., Wilson G. Smillie, M.D., James A. Doull, M.D., John E. Gordon, M.D. Edited by Franklin H. Top, M.D. Sponsored by The Epidemiology Section, American Public Health Association. The C. V. Mosby Company, St. Louis. 190 pages. $4.75.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN. Edited by Rene J. Dubos, Ph.D., The Rockefeller Institute for Medical Research. Second Edition. 98 illustrations. J. B. Lippincott Company, Philadelphia, London, Montreal. $7.50. 887 pages.

MONOGRAPHS IN MEDICINE. Series 1. William B. Bean, M.D., Editor, Professor and Head of the Department of Medicine, State University of Iowa. Associate Editors — Morton Hamburger, M.D., John A. Leutscher Jr., M.D. and Stewart Wolfe, M.D. The Williams & Wilkins Company, Baltimore. 655 pages. $12.00.

SEXUAL ADJUSTMENT IN MARRIAGE. By Henry Olsen,

*(Continued on page 58)*

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1. Rogers, M. P., and Gray, C. L.; *Am. J. Digest. Dis.*, 19:180, 1952.

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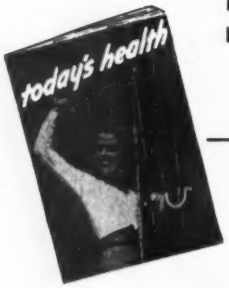


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M.D. Henry Holt and Company, New York. 310 pages. $6.00.

DISEASES OF METABOLISM. Detailed Methods of Diagnosis and Treatment: Edited by Garfield G. Duncan, M.D., Director of Medical Division, Pennsylvania Hospital; Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, Pennsylvania. New, 3rd Edition. 1179 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1952. Price $15.00.

NUTRITION AND DIET IN HEALTH AND DISEASE (Sixth Edition). By James S. McLester, M.D., Professor of Medicine Emeritus, University of Alabama; and William J. Darby, M.D., Ph.D., Professor of Biochemistry and Director of the Division of Nutrition, Vanderbilt University. New, 6th Edition. 710 pages with 14 figures and 145 tables. Philadelphia & London: W. B. Saunders Company, 1952. Price $10.00.

PRACTICAL DERMATOLOGY FOR MEDICAL STUDENTS AND GENERAL PRACTITIONERS: By George M. Lewis, M.D., F.A.C.P., Professor of Clinical Medicine (Dermatology), Cornell University Medical College; Attending Dermatologist, The New York Hospital; Secretary, the American Board of Dermatology and Syphilology. 328 pages with 99 figures. Philadelphia and London: W. B. Saunders Company, 1952. Price $7.50.

OPHTHALMIC PATHOLOGY. An Atlas and Textbook: By Jonas S. Friedenwald, Helenor Campbell Wilder,

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A. Edward Maumenee, T. E. Sanders, John E. L. Keyes, Michael J. Hogan, W. C. and Ella U. Owens, with the editorial assistance of Helen Knight Steward. Published under the joint sponsorship of The American Academy of Ophthalmology and Otolaryngology and the Armed Forces Institute of Pathology. 489 pages with CCLX Plates. Philadelphia & London: W. B. Saunders Company, 1952. Price $18.00.

ELECTROCARDIOGRAPHY IN PRACTICE: By Ashton Grayviel, M.D., Captain, Medical Corps, U. S. Navy; Director of Research, U. S. Naval School of Aviation Medicine, Pensacola, Florida; Paul D. White, M.D., Executive Director, National Advisory Heart Council; Consultant in Medicine, Massachusetts General Hospital; Louise Wheeler, A. M., Executive Secretary, the Cardiac Laboratory, Massachusetts General Hospital; Conger Williams, M.D., Instructor in Medicine, Harvard Medical School; Associate Physician, Massachusetts General Hospital. New, 3rd Edition. 378 pages with 294 figures. Philadelphia and London: W. B. Saunders Company, 1952. Price $10.00.

ESSENTIALS OF BODY MECHANICS in Health and Disease. Joel E. Goldthwait, M.D., F.A.C.S., LL.D., Sc.D., Lloyd T. Brown, M.D., F.A.C.S., Loring T. Swaim, M.D., John G. Kuhns, M.D., F.A.C.S., Sc.D. 135 illustrations. Fifth Edition. J. B. Lippincott Company, Philadelphia, London, Montreal. 356 pages. $6.00.

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a Handbook of Biological Data: Edited by Errett C. Albritton, A.B., M.D., Fry Professor of Physiology, The George Washington University. Prepared under the Direction of the Committee on the Handbook of Biological Data American Institute of Biological Sciences, The National Research Council. 199 pages. Philadelphia and London: W. B. Saunders Company, 1952. Price $4.50.

MANUAL FOR TRAINING NURSERY AIDES TO WORK IN NURSERIES FOR NEWBORN INFANTS. Chicago Council on Community Nursing, Nursing Service Committee and Board of Health, City of Chicago. 27 pages. $1.00.

THE CHICK EMBRYO IN BIOLOGICAL RESEARCH. Annals of the New York Academy of Sciences. Volume 55, Art. 2; Pages 37-344. Editor, Roy Waldo Miner. Conference Chairman, M. E. Rawles and D. A. Karnofsky. 344 pages. $4.00.

SHOCK SYNDROME. Annals of the New York Academy of Sciences. Volume 55, Art. 3. Pages 345-542. Editor, Roy Waldo Miner. Conference Chairman — John Scudder. 375 pages. Illustrated. Price $3.75.

SYMPOSIUM ON TREATMENT OF TRAUMA IN THE ARMED FORCES (10-12 March 1952). Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington 12, D. C.

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pectoris developed diagnostic electrocardiographic changes. *Seymour H. Rinzler, M.D. Evaluation of Newer Diagnostic Tests for Coronary Artery Disorders in the Patient with Chest Pain and a Normal Electrocardiogram. New York J. Med., Oct. 1, 1952.*

## HERNIA IN CHILDHOOD

The cause of indirect inguinal hernia in early childhood is not a muscular weakness but is the failure of the processus vaginalis to obliterate itself. In embryonic life the testis develops high on the posterior wall of the abdomen. Descent of the testis through the inguinal canal into the scrotum occurs behind the advancing invaginated peritoneum (processus vaginalis). This descent occurs during the last trimester of pregnancy. On entering the scrotum the testis and cord become enfolded by processus vaginalis. This enfolding is never complete. The testis and cord are never completely surrounded by the processus. After complete descent of the testicle the processus vaginalis usually becomes pinched off and forms the ensheathing tunica vaginalis. The upper part of the processus vaginalis normally atrophies; failure to do so results in a congenital indirect hernia. The preformed sac remains patent at birth in 50 per cent of the infants. The right testicle descends at a later date than does the left and probably accounts for the higher incidence of indirect inguinal hernia on the right side. *Bert Bradford, Jr., M.D. and John T. Jarrett, M.D., Inguinal Hernia in Infancy and Early Childhood. Am. Surg., Oct. 1952.*

Vast changes have taken place in our understanding of tuberculosis, the methods of its control and treatment, and the possibility of its ultimate eradication. As far back as 1937 Dr. Wade Frost demonstrated epidemiologically that this possibility could be made a reality even with the public health control methods then available, provided we intensified our efforts sufficiently. The goal is still distant but new methods and discoveries give us coverage to pursue it still more energetically. Kendall Emerson, M.D., Conn. State Med. J., May, 1952.


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Patients continue to be admitted to tuberculosis hospitals with moderate to far-advanced tuberculosis, giving a history indicative of disease having been present for many months before the actual diagnosis was made. With the facilities which are available today there seems to be little if any excuse for the frequency of this occurrence. James M. Blake, M.D., N.Y.S. J. of Med., Feb. 1, 1952.

---

A considerable number of patients with active tuberculosis refuse to accept hospitalization and remain at home to infect others. Since the advent of streptomycin, home treatment has become increasingly apparent. Whatever the cause—lack of understanding, financial worries or the false hope that adequate treatment is possible at home—home management of active tuberculosis is extremely difficult under the best of circumstances—is rarely adequate and often dangerous, and every effort should be made to have the patient accept hospitalization. Paul S. Phelps, M.D., and Reginald C. Edson, M.D., Conn. State Med. J., May, 1952.

## GROUP BEHAVIOR UNDER STRESS

The individual reacts to fear by mobilizing his physiologic energies for fight or flight. His heart rate speeds up, his muscles stiffen, his skin becomes pale, and within his body various chemical and hormonal changes occur as a reaction to this stress that seems designed to help him to fight more vigorously or run faster than he would otherwise be able to do. When so stimulated by fear he may or may not use the best judgment of which he is capable when not so stimulated. When in a group, however, men and women react in part as individuals, but in addition there is an added circumstance that may move the group to incredibly foolish action or to unbelievable heights of heroism. Which way the group will go depends upon many factors — its previous individual experience, its conditioning, its reason for existence and, above all, its leadership. *Dana L. Farnsworth, M.D., Mental-Health Aspects of Civil Defense. New England J. Med., Aug. 7, 1952.*

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Most people resist education and only the few seek it. Educators tell us there are three periods in life when the individual is very ready to learn; (1) The little child who is eager to learn everything. (2) The young mother who wants to learn how to care for her child. (3) The person who is ill is very anxious to learn how to regain his health. The patient is a member of a community; he is anxious to learn how to get well and stay well, but he cannot learn without a teacher. The logical persons to reinforce the formal instruction which the patient receives, whether that instruction be given by the doctor or a nurse, are the members of the nursing staff in their daily contacts with the patient. Aileen Flett, R.N., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.

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* Lane, C. G., "Therapeutic Dermatitis", New Eng. J. Med., 246:77-81, 1952

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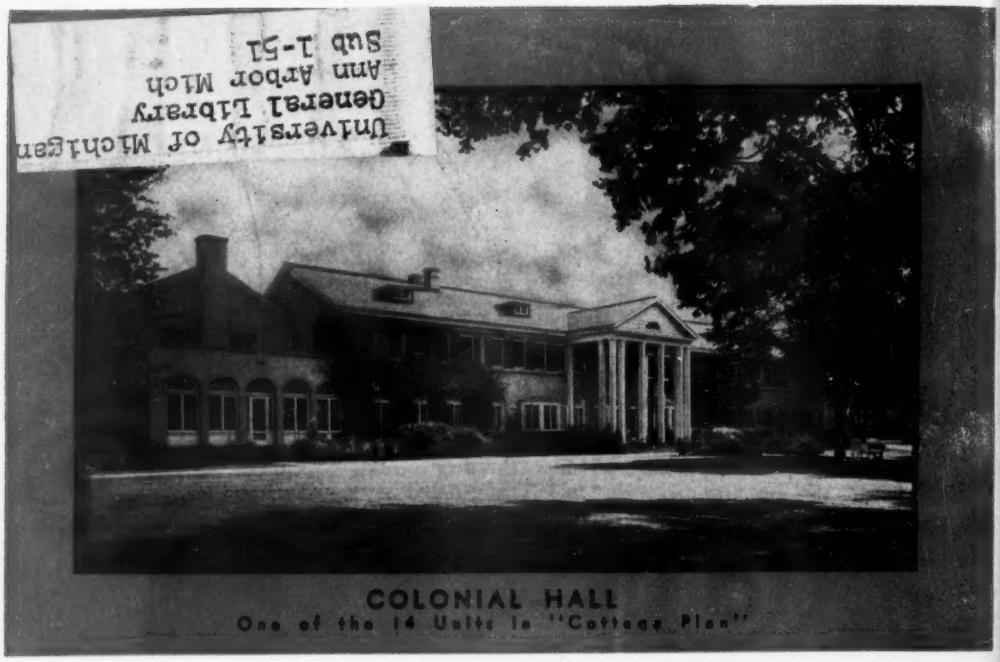

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